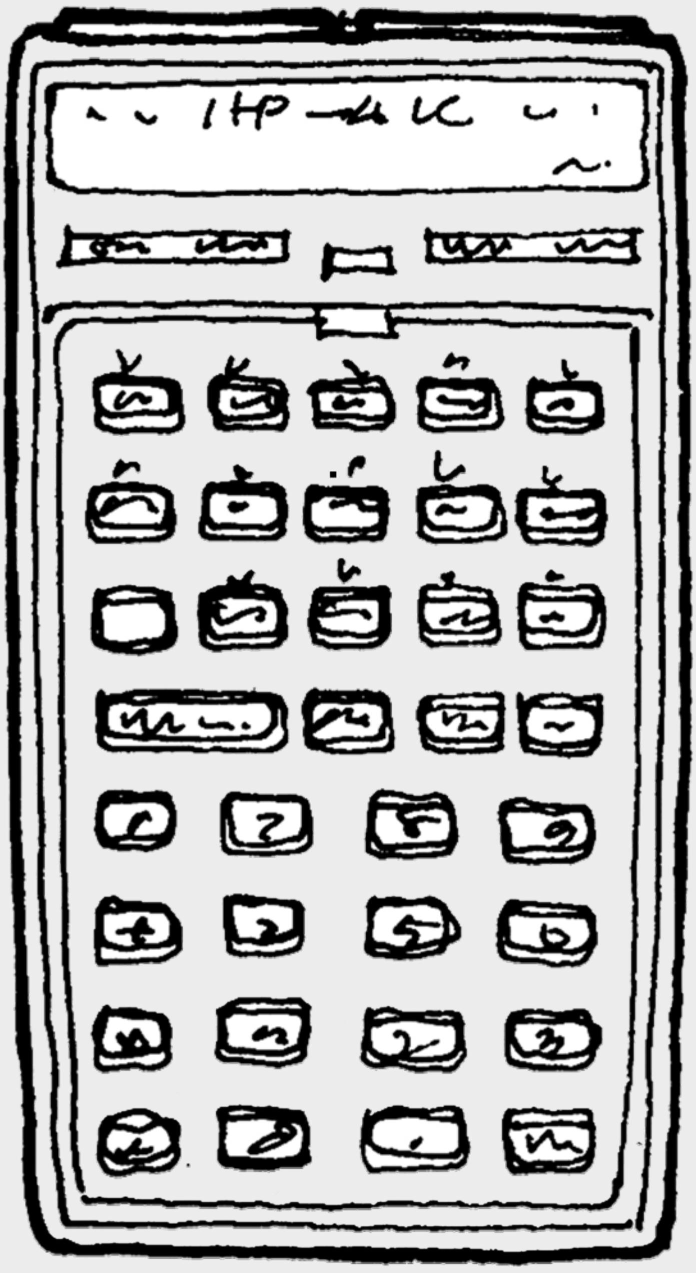
MULTIPLY

The Francis Hookham Collection of Hand Held Electronic Calculators



Whipple Museum of the History of Science



011

Hewlett Packard 41C

c. 1979

When the Hookham Collection was given to the Whipple Museum of the History of Science in 1988, Francis Hookham was still using this calculator. He gave it to the Museum later on.

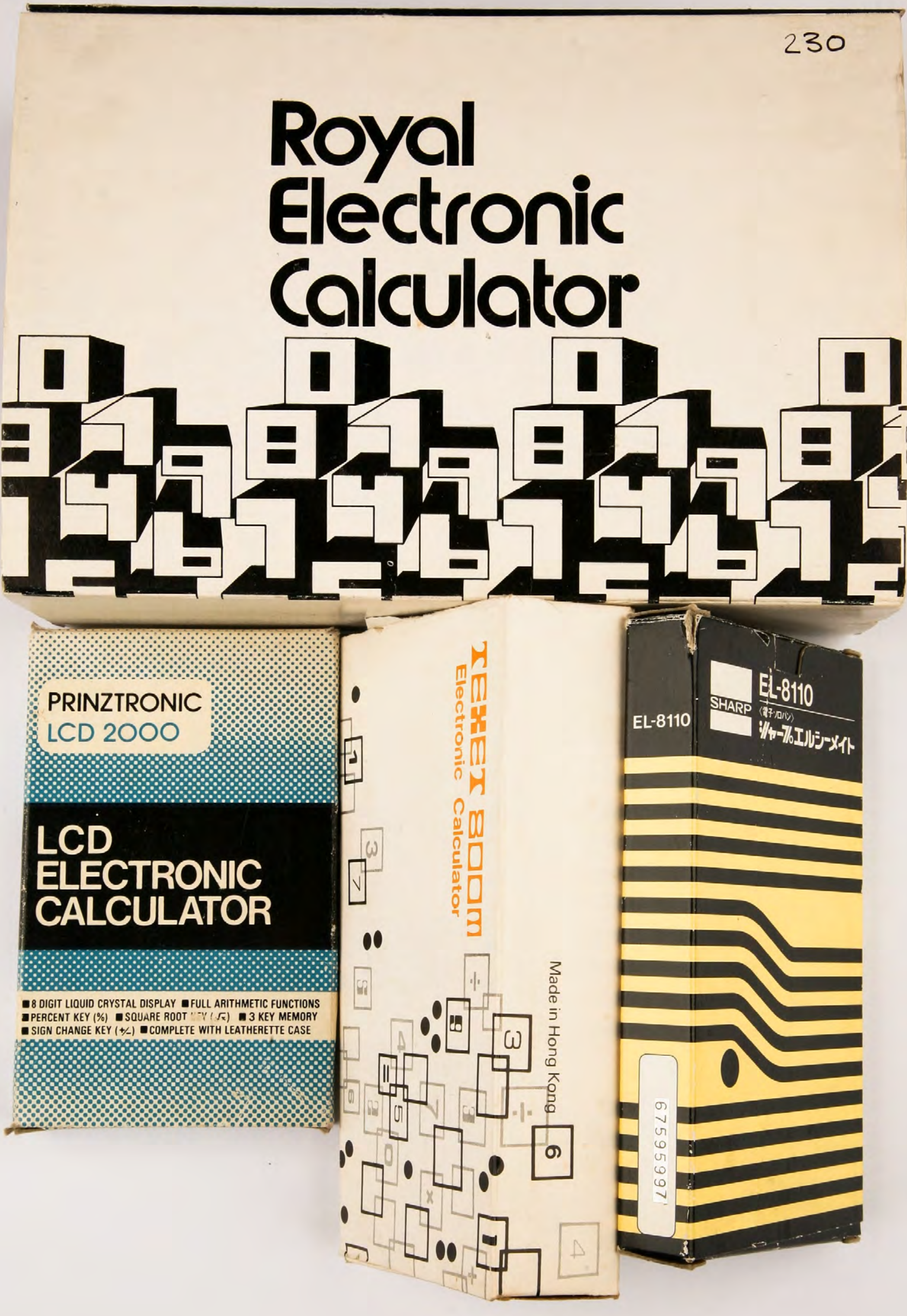

ELECTRONIC CALCULATOR
SHARP

MULTIPLY

The Francis Hookham Collection of Hand Held Electronic Calculators

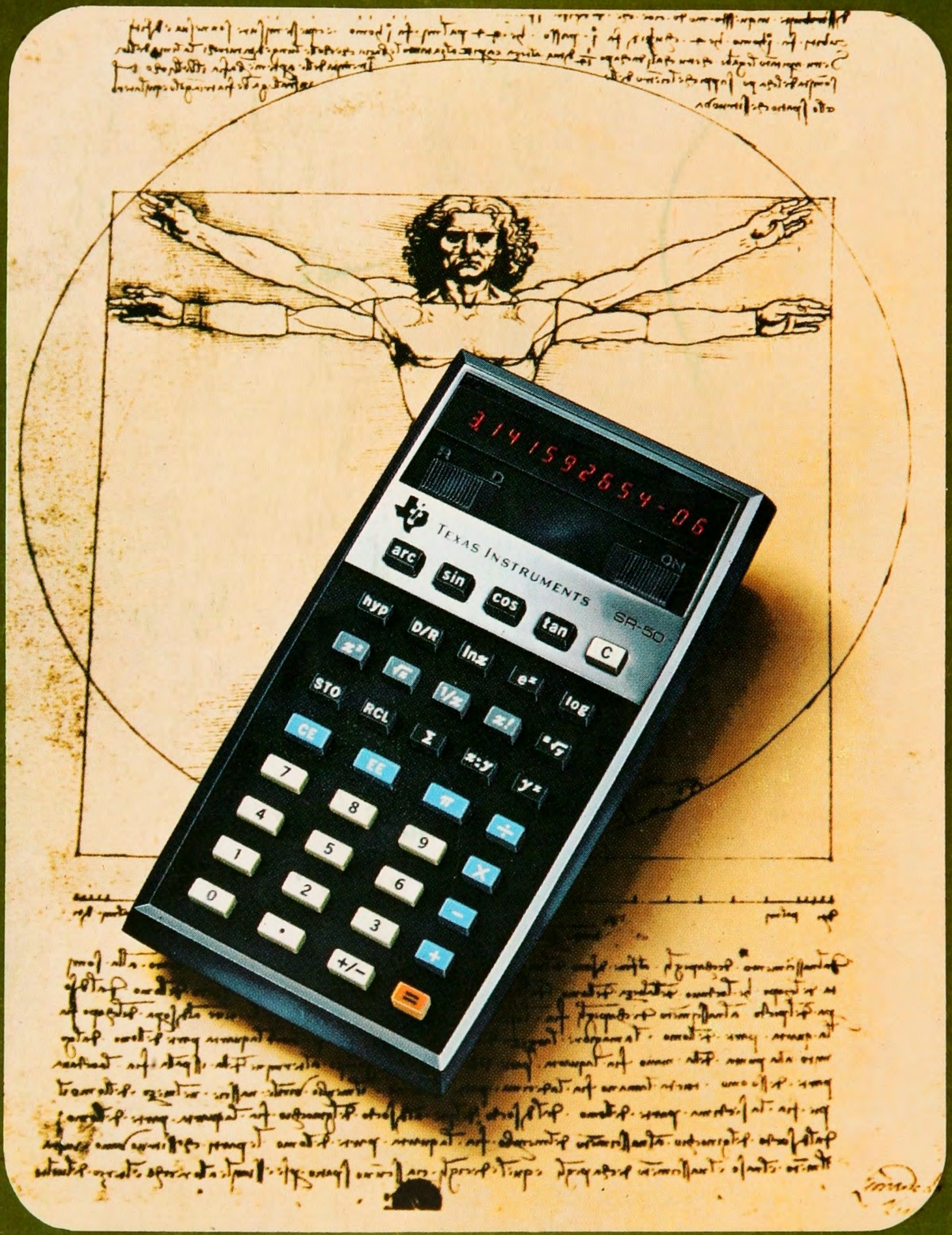
Whipple Museum of the History of Science

Edited by
Catherine Eagleton and Benjamin Blundell


230
Royal
Electronic
Calculator
PRINZTRONIC
LCD 2000
LCD
ELECTRONIC
CALCULATOR
8 DIGIT LIQUID CRYSTAL DISPLAY
FULL ARITHMETIC FUNCTIONS
PERCENT KEY (%)
3 KEY MEMORY
SIGN CHANGE KEY (+/-)
COMPLETE WITH LEATHERETTE CASE
TEXET 8000M
Electronic Calculator
Made in Hong Kong
EL-8110
SHARP
EL-8110
67595997

047

SR-50



TEXAS INSTRUMENTS

Dedicated to Professor Liba Taub, Director and Curator of the Whipple Museum and to the memory of Francis Hookham (1931 - 2020)

Published in 2022 by
Whipple Museum of the History of Science
Free School Lane
Cambridge
CB2 3RH

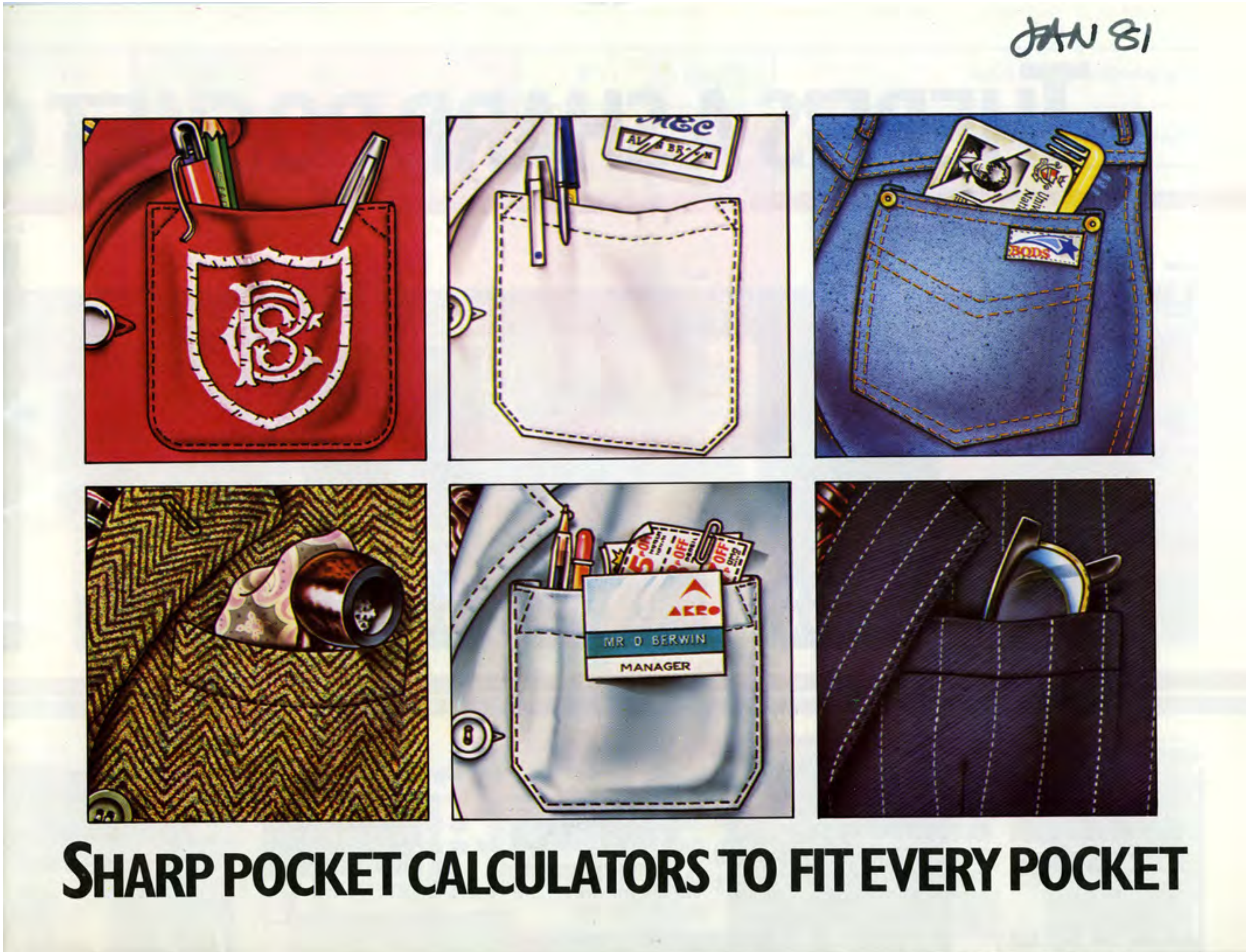
https://www.whipplemuseum.cam.ac.uk

ISBN-10: 0-906271-29-0
ISBN-13: 978-0-906271-29-2

Design and page layouts in Scribus
Calculator images cropped using Mask_RCNN : https://github.com/matterport/Mask_RCNN
Typeset in Glacial Indifference and Dinreg
Printed and bound in Cambridge by AVMG

Whipple Museum
of the History of Science

CONTENTS



Advertisement for Sharp pocket calculators

1981

Francis Hookham kept an archive of clippings, advertisements, and other things relating to calculators that he cut out of newspapers and magazines. He often annotated them with the date of publication, and sometimes added other details.

INTRODUCTION

Catherine Eagleton

Think of a museum, and you might imagine antiquities, great works of art, or perhaps stuffed animals. Think of the Whipple Museum of the History of Science, and you might imagine astrolabes, telescopes, and globes – the tools of research and teaching astronomy – or medical equipment and models. Important to the histories of science and technology, and just as much to our daily lives, tools for calculation are also part of this story.

Devices like adding machines, abacuses and slide rules had long been used to make calculation easier and more accurate, and from the 1960s electronic calculators were increasingly used in offices and laboratories. These were desktop rather than portable devices, but as transistors replaced valves, they began to get smaller. Once integrated circuits and better screens were available, by the 1970s calculators were truly pocket-sized. In 1972 Texas Instruments introduced the HP-35, the first pocket scientific calculator with logarithmic, exponential and trigonometric functions, meaning that it could replace the slide rule in the pocket of a scientist or an engineer.

During the 1970s, improvements in screens, power supplies and batteries meant that calculators could get smaller and smaller – once pocket-sized, they could now be wallet-sized, replacing pen and paper for everyday calculations in the home or at work. New features and functions were added, and advertising promoted the latest models. By the 1980s, calculators were not only scientific or technical objects, but they could be found in many different kinds of pockets, and had pervaded everyday life, changing the way we thought about numbers and calculations.[1]

[1] The fullest history of pocket electronic calculators is Guy Ball and Bruce Flamm, The Complete Collector's Guide to Pocket Calculators (Tustin, California.: Wilson/Barnett Publishing , 1997). There are also a number of useful websites on pocket electronic calculators, with links to other resources and examples of many different types of calculator, for example (accessed on 1 June 2021): https://www.whipplemuseum.cam.ac.uk/explore-whipple-collections/calculating-devices/handheld-electronic-calculators
https://www.si.edu/spotlight/handheld-electronic-calculators http://www.vintagecalculators.com/index.html

As mobile phones have become near-ubiquitous in the last decade, the calculator is now an app, and the device in our pockets is more likely to be a smart phone. Some of us, perhaps, have an old calculator in a box somewhere in storage.

It takes an astute curator or collector to spot an object in daily use, to realise that it is important, and transforming our lives, and to begin a collection so that this part of our material history can be preserved. Contemporary collecting, as it is typically termed by museum curators, is a kind of guess at the future significance of an object or objects, and at their future potential for research and teaching, or for the stories they will later enable us to tell. Francis Hookham did this while millions of calculators were still being made and used, but at a time when they were not typically being collected by museums.

Hookham's collection was donated to the Whipple Museum in 1988, and although no new calculators have since been added to it, it remains an active collection. Students in the Department of History and Philosophy of Science, and staff of the Whipple Museum, have for many years been working on the collection, to catalogue each calculator, to research and write about their history,[2] and to curate displays.

This catalogue was completed and printed to mark the retirement of Professor Liba Taub, Curator and Director of the Whipple Museum, whose commitment to, and enthusiasm for, the Hookham Collection has ensured that the collection remained relevant, visible and actively used.

The foresight and determination of Francis Hookham to build his collection continues to inspire everyone who works with it.

Owners handbook for Hewlett-Packard HP-25 (opposite)

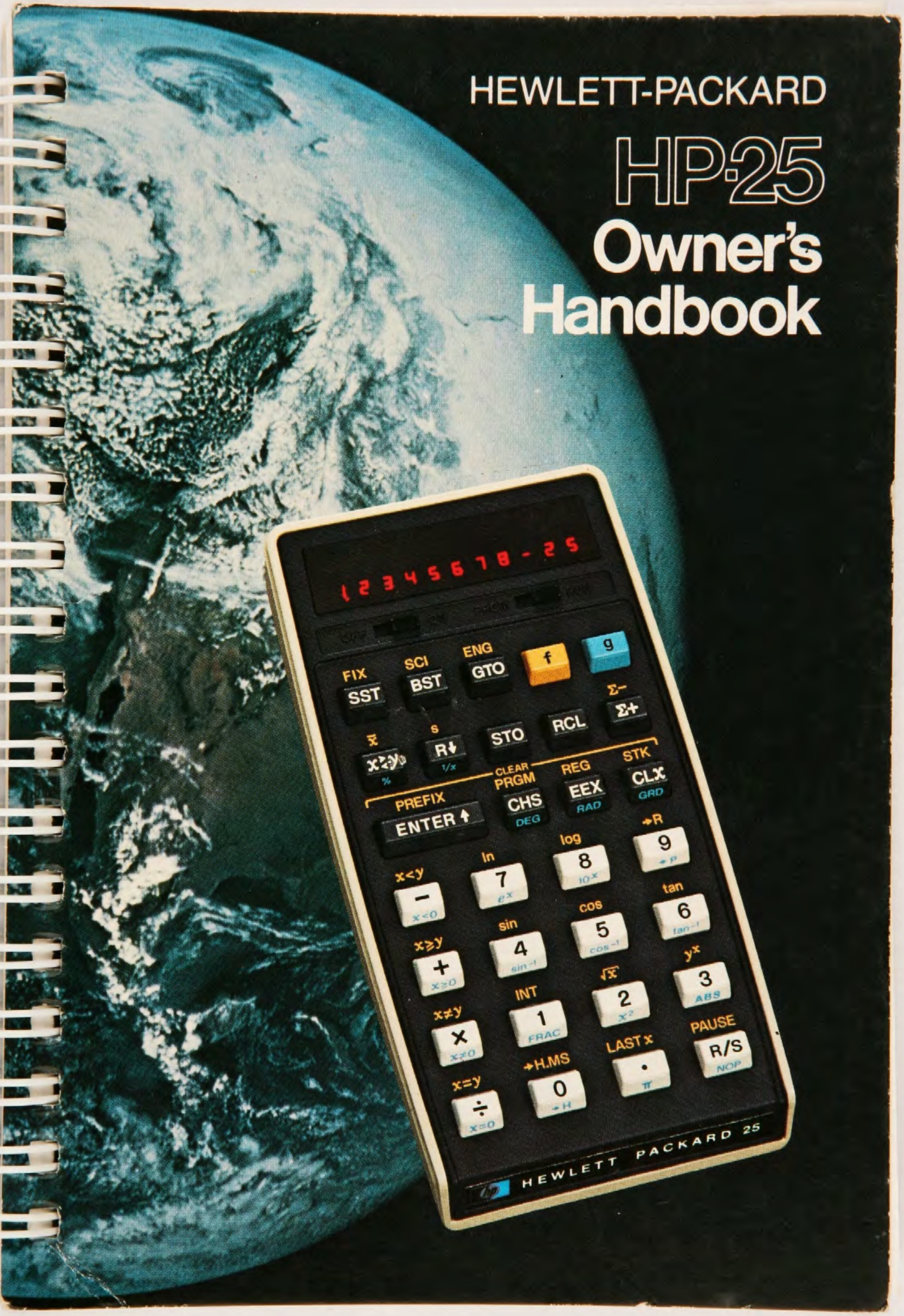
1975 - 1978

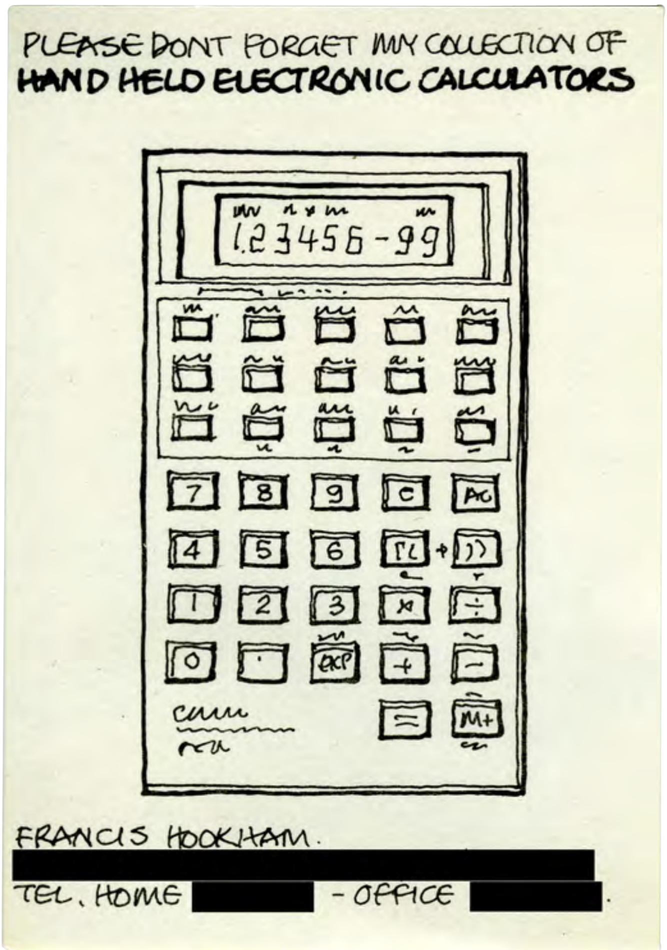
This instruction manual was probably acquired in April 1977 by Francis Hookham, when he also bought the HP-25C that later became number 005 in his collection.

[2] Student Research Conducted on the Whipple Museum's Collections since 1995 in J. Nall, L. Taub, & F. Willmoth (Eds.), The Whipple Museum of the History of Science: Objects and Investigations, to Celebrate the 75th Anniversary of R. S. Whipple's Gift to the University of Cambridge (Cambridge: Cambridge University Press, 2019), pp 313-322. doi:10.1017/9781108633628.016

HEWLETT-PACKARD

HP-25 Owner's Handbook

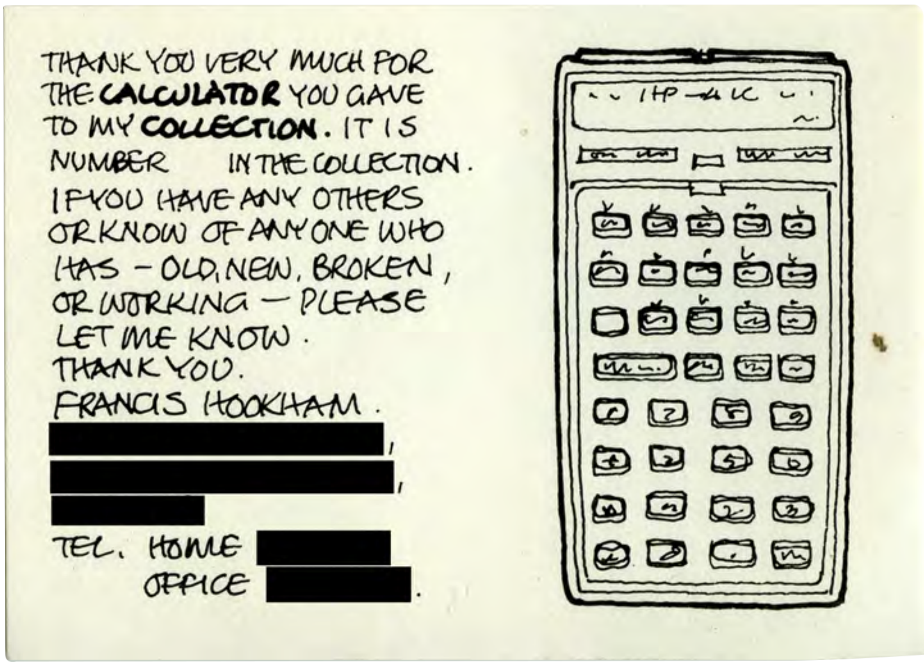




Flyers hand-drawn by Francis Hookham

1970s – 1980s

Hookham carefully recorded who gave him calculators for his collection – information included in this catalogue. He drew these flyers to remind people about his collection, or to thank people for giving him calculators for it. They feature specific calculators in his collection: left, a Canon, and below, a Hewlett-Packard HP-41C, possibly the one that is now 011 in the collection.



FRANCIS HOOKHAM

Sophia Davis and Catherine Eagleton

In 1974, architect Francis Hookham was putting together two kits to make Sinclair electronic calculators, with his son. Buying calculators as kits was not uncommon at the time, as calculator prices were falling and companies had begun to sell self-assembly calculators to preserve their profit margins. Kits also allowed someone technically capable to examine the components, and to become fascinated with these hand held electronic devices.

> I think it was realising what the chip was actually doing. It was the first direct experience of what this marvellous thing that we kept hearing about: the integrated circuit and the chip. Actually seeing that it was doing things which before we'd struggled with—slide rules and worse still log tables—and there was this super thing that was doing it all for us [1].

By the 1970s, Hookham had noticed the rapid development of calculator technology, and thought it was important that someone kept a record. Why he became so passionate about collecting hand-held electronic calculators even he wasn't later entirely sure, but starting in 1979 he wrote hundreds of letters to manufacturers, distributers and anyone else he could think of, to build the collection. Hand-drawn cards were handed to friends and acquaintances to encourage them to consider giving old calculators to his collection.

> The object of the collection is not clearly defined except that I just feel, in this tremendously important period of very rapid change, I would like to record a part of it ... simply to capture a little bit of history.[2]

> I have met Clive Sinclair. Texas Instruments have been most helpful. Sharp are hostile and talk of classified information and patents (makes me sound like an industrial spy – which I am not)! Casio are not at all interested. Many other approaches have simply not been acknowledged. Bowmar in Canada who made the first have not replied.[3]

[1] Francis Hookham in an interview with Radio Cambridgeshire, 1988, transcription in hte Hookham Archive, Whipple Museum
[2] Francis Hookham to D. Baldwin, Managing Director of Hewlett Packard Ltd, 23 October 1980), in Hookham Archive, Whipple Museum
[3] Francis Hookham to Prof D.J. Wheeler, 4 December 1980, in Hookham Archive, Whipple Museum

> At first most people thought it was a bit of a joke but now they realise that what I am doing is really worthwhile.[4]

Hookham didn't only collect calculators, however. He thought it just as important to collect instruction manuals, magazines, adverts, cases, and other associated and ephemeral objects that could tell the full story of these handheld electronic devices.

> I do not think collecting the calculators is a particular problem ... the most important thing seems to be to collect as much background information as possible before it is lost.[5]

As the number of calculators reached more than 400, Hookham worried about keeping personal ownership of an increasingly valuable collection. In 1988 he donated it to the Whipple Museum, along with the archive and his correspondence relating to the creation of the colleciton. The Curator at the time, Dr Jim Bennett, could see the importance of the collection as one documenting a moment, and a technology that might not last.

However, not all commentators were entirely convinced about why the collection should have been acquired for a museum. Boris Johnson, in his column in the Daily Telegraph, somewhat sarcastically welcomed readers to the "age of the instant antique" and suggested that the Whipple Museum could branch out from science, and become a "major tourst attraction for its peerless collection of obsolete gadgets of every kind." [6] However, more than thirty years later, Hookham and Bennett's faith in the calculators has been validated – and visitors to the Whipple Museum today still excitedly look at the pocket electronic calculators in the collection.



Yesterday's high-tech is today's museum piece

Museum piece: Calculating machine, circa 1975

By Sam Kiley
Universities Reporter

It may be some time before the London auction houses issue catalogues of "late twentieth century calculators" but the little miracles of mathematics which less than 20 years ago were at the forefront of new technology have already become antiquities worthy of exhibition in one of the country's leading science museums.

A collection of calculators (circa 1975 – 1987) has been donated to the Whipple Museum, part of Cambridge University, and is on display in glass cabinets.

The mini-computers range from early Sinclair devices to a Hewlett Packard model used by NASA astronauts on their last visit to the moon. "They are worthless in a sense because no one wants them, but that is why it is essential for us to keep a collection of them," Dr Jim Bennett, curator of the Whipple, said.

The Hookham Collection of Pocket Calculators was started by local architect Mr Francis Hookham 13 years ago when he made his first Sinclair kit-calculator.

"I have never collected anything before, but I thought I should start because things were changing so fast. I decided to give it to the museum before it became worth anything and I became tempted to start trading the rare ones for money," said Mr Hookham.

He was given most of the 415 calculators in the exhibition by computer firms and well-wishers. Although the pocket calculator is one of the more spectacular examples of rapid obsolescence in the face of technological change, Mr Jeremy Collins, scientific instruments specialist at Christie's, does not recommend hoarding Casio's. "It would be a waste of time to hold on to them – they would just clutter up one's drawers."

However, the Munich Science Museum, which currently has an exhibition of 1970's computers, is short on pocket calculators.

The new exhibits are proving successful with young visitors. "The kids are not really turned on by the medieval instruments, but they are fascinated by the calculators," Dr Bennet said.

"They get all glassy-eyed and point at the 'Little Professor' (circa 1980) calculator and coo nostalgically."

[4] Francis Hookham to R. Cosgrove, Canon, UK, 5 February 1982, in Hookham Archive, Whipple Museum
[5] Francis Hookham to K. C. Sinclair, 16 March 1981, in Hookham Archive, Whipple Museum
[6] Daily Telegraph, 26 October 1988, clipping in Hookham Archive, Whipple Museum



Rather than allow broken pocket calculators to accumulate in desk draws Cambridge architect Francis Hookham has been collecting and repairing them. Since 1975 he has built up a collection of 450 which he has now handed over to Cambridge University's Whipple Museum of the History of Science.

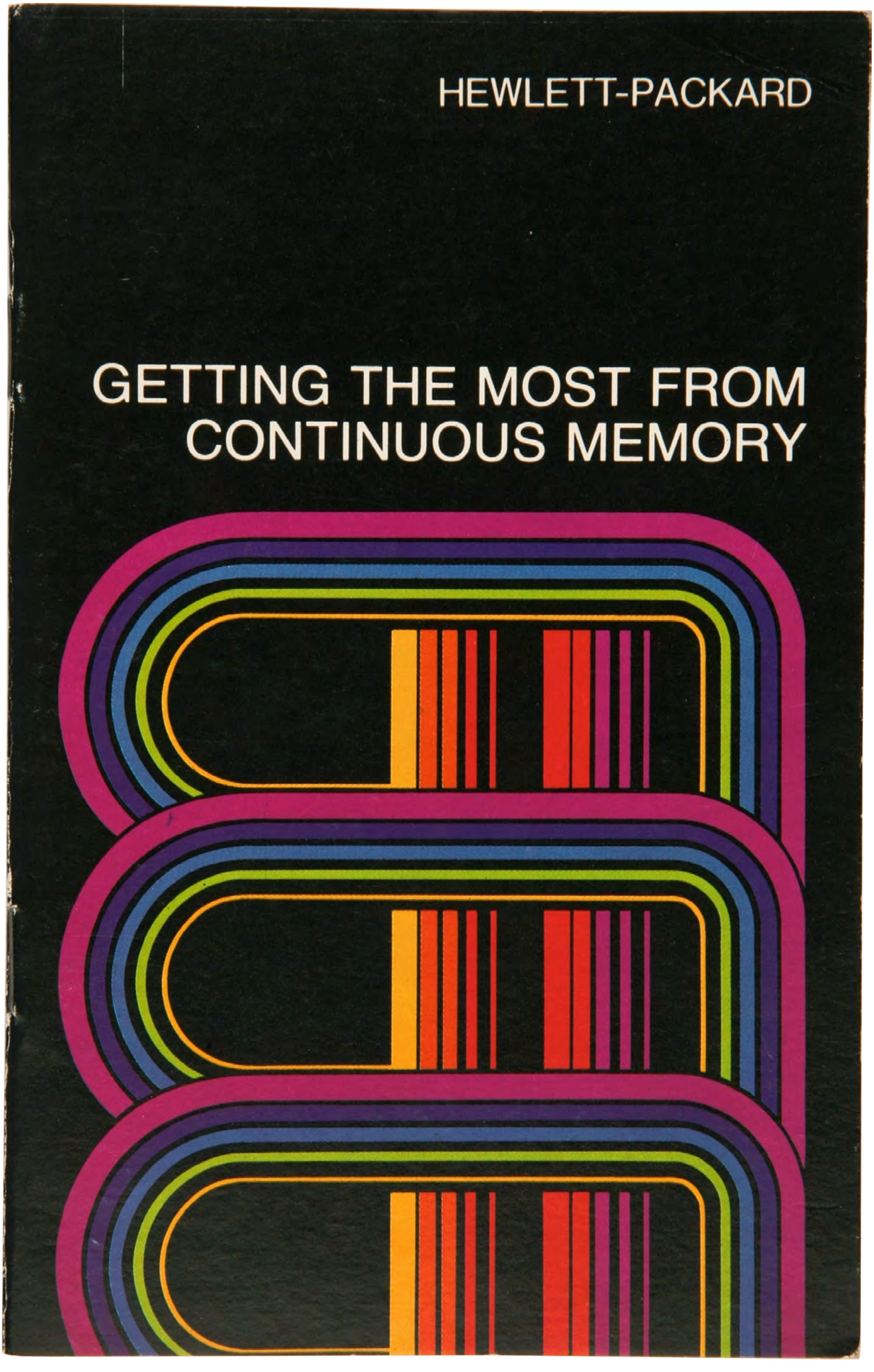
Mr Hookham, pictured holding a 1971 Canadian Bowmar calculator, said: "It is a period of history which it seemed within my power to freeze. I hope in a couple of hundred years someone will be glad I did so."

Newspaper cuttings from Times Educational Supplement (above) and The Times (opposite)

1988


CONVERTER MC-34
CASIO MC-34
Calculators
MODEL
10
CASIO
SCIENTIFIC CALCULATOR
fx-570
ELECTRONIC CALCULATOR
facit
2003


you can count on.
EXECUTIVE
FACIT
8 DIGIT LIQUID CRYSTAL DISPLAY ■ FULL ARITHMETIC FUNCTIONS
■ 3 KEY MEMORY
SIGN CHANGE KEY (+/-) ■ COMPLETE WITH LEATHERETTE CASE
PRINZTRONIC
LCD 2000


HEWLETT-PACKARD
GETTING THE MOST FROM
CONTINUOUS MEMORY

HOOKHAM COLLECTION

Getting the most out of the data pages



Example	Key
003A1	Hookham Number
Sinclair: Scientific	**Manufacturer: Model**
c. 1974, UK	Date, place of manufacture
+ ⊖ log exp ab+	Functions (see key, right)
Power: 2 AAA batteries Screen: LED Chip: TI TMC0805NC 7424 IFC1 7506, IFC2 7505	Power Supply Screen Type Chip(s), where known
Keys: short-travel, heavy, bright click	Feel of the keys in use
110 x 50 x 17mm, 60g	Dimensions, weight
£32.50	Price for this model, where known
Purchased with two others for a total of £5 from Campkins (Cambridge) in 1982	Provenance
Displays only in scientific notation: 5-digit mantissa and 2-digit exponent	Notes

- Alarms
- xy Algebraic
- + Arithmetic
- bc Base conversion
- cm Continuous memory
- Conversions
- Dictaphone
- exp Exponential
- £ Financial
- fdp Fixed decimal places
- Games
- az Language and spelling
- log Logarithmic
- M Memory
- Music
- % Percentage
- π Pi
- Printer
- Print compatibility
- pg Programmable
- qw QWERTY keyboard
- 1/n Reciprocal
- ab+ Reverse Polish Notation
- h Scientific constants
- -+ Sign conversion
- x^2 Square
- √ Square root
- σ^2 Statistical functions
- Stopwatch
- Time and date
- ⊖ Trigonometric functions

Booklet, Hewlett-Packard (opposite)

1977

Early calculators could not retain data in memory if the calculator was switched off – until Hewlett-Packard introduced what they called 'Continuous memory' in 1976. This booklet promoted the new technology, and instructed calculator users in how to make the most of it.



001

Dixons: Prinztronic C15

c. 1973, Hong Kong

+ fdp

Power: 4 AA batteries or mains supply (added later)
Screen: LED

Keys: pads rather than keys, squishy

171 x 79 x 21mm, 130g

Donated by Alfred Eccles (Corpus Christi College, Cambridge) in early 1978

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



002A1

Sinclair: Cambridge Memory

c. 1974, UK

+ M %

Power: 2 AAA batteries or mains supply (added later)
Screen: LED
Chip: C-595 7603 8A TI IFCI 7614

110 x 49 x 17mm, 40g

£13.95 in February 1971, to £5.72 in October 1977

Originally made as kit in 1974, but then exchanged for a new model



002A2

Sinclair: Cambridge Universal

c. 1977, UK

+ M % x² √ 1/n fdp

Power: 9v battery
Screen: LED
Chip: 7623 MOSTECK MK 50321N MALAYSIA

Keys: short-travel, heavy, prominent click

1110 x 49 x 22mm, 40g

Donated by John Chaplin in 1980

The battery cover protrudes from the underside, causing this model to be unstable when used, and giving it the nickname of the 'pregnant' model



002A3

Sinclair: Cambridge Memory

1977, UK

+ M % fdp

Power: 9v battery
Screen: LED
Chip: MOSTEK MK 50321N-1 MALAYSIA 7638

Keys: short-travel, heavy, bright click

110 x 49 x 22mm, 40g

£14.95 in 1975, to £5.72

Donated by Peter Dulley in 1981



002A4

Sinclair: Cambridge Memory

1975, UK

+ M %

Power: 2 AAA batteries
Screen: LED
Chip: GIMT5 C595L TI IFC1 7513

Keys: short-travel, heavy, bright click

110 x 49 x 17mm, 50g

£14.95 in 1975, to £5.72

Donated by Keith Fox in 1981



003A1

Sinclair: Scientific

c. 1974, UK

+ ⊖ log exp ab+

Power: 2 AAA batteries
Screen: LED
Chip: TI TMC0805NC 7424 IFC1 7506, IFC2 7505

Keys: short-travel, heavy, bright click

110 x 50 x 17mm, 60g

£32.50

Purchased with two others for a total of £5 from Campkins (Cambridge) in 1982

Displays only in scientific notation: 5-digit mantissa and 2-digit exponent



003A2

Sinclair: Cambridge Scientific

c. 1974, UK

+ M √ 1/n π ⊖ log exp

Power: 2 AAA batteries or mains supply (added later)
Screen: LED
Chip: C596 7620 TI IFC176, 27, TI IFC2 76, 32

Keys: short-travel, heavy, bright click

110 x 50 x 17mm, 50g

£53.90 in August 1974, to £9.18 in October 1977

Purchased for £14.95 as a kit in 1975, but later exchanged for a new model



003A3

Sinclair: Scientific

c. 1974, UK

+ ⊖ log exp ab+

Power: 4 AAA batteries
Screen: LED

Keys: short-travel, heavy, bright click

110 x 50 x 17mm, 60g

£32.50

Donated by Clive Dalton (Cambridge Institute, Little Eversden) in 1983

On a sticker on the rear, Hookham noted 'Excessive current & checked for shorts'



004

National Semiconductor Corporation: Novus 4525

1976, Malaysia

+ M √ 1/n π ⊖ log exp pg ab+

Power: sealed rechargeable battery pack
Screen: LED

Keys: short-travel, heavy, no click

156 x 73 x 25mm, 200g

£46.25 in May 1976, to £35.45 in autumn 1976; $169.95 in the U.S.

Purchased for £46.25 in 1976

Novus was a brand name used by National Semiconductor to help promote their products



005

Hewlett Packard: HP-25C

1977, Singapore

+ cm fdp % x² √ 1/n π ⊖ log exp pg σ² ab+

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, rock backwards, dull thud

127 x 67 x 30mm, 100g

£155 in June 1976, to £120 in September 1978

Purchased for £149 in 1977



006A1

Texas Instruments: TI-2500 Datamath

c. 1972, UK

+

Power: sealed rechargeable battery pack
Screen: LED

Keys: short-travel, well weighted, bright click

138 x 71 x 42mm, 180g

Announced at $149.95 in April 1972, but introduced at $119.95 in September 1972; £35.50 in the UK in December 1973

Donated by Denis Marshall (Lewis and Marshal) in 1979

Texas instruments had been involved in the calculator business since the mid-1960s, but this was their first consumer pocket calculator



006A2

Texas Instruments: TI-2500 Datamath

1972, Europe

+

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, well weighted, bright click

139 x 73 x 40mm, 300g

Announced at $149.95 in April 1972, but introduced at $119.95 in September 1972; £35.50 in the UK in December 1973.

Donated by Brian Pane (Heffers, Cambridge) in 1980

Texas Instruments produced updates of models quite frequently - later models of the TI-2500 are more common, but this example is a rarer 'type 1'



006A3

Texas Instruments: TI-2500 Datamath

1974, Spain

+

Power: sealed rechargeable battery pack
Screen: LED

Keys: short-travel, well weighted, bright click

138 x 70 x 42mm, 190g

Announced at $149.95 in April 1972, but introduced at $119.95 in September 1972; £35.50 in the UK in December 1973

Donated by Brian Pane (Heffers, Cambridge) in 1980



006A4

Texas Instruments: TI-2500B Datamath

1974, Spain

+

Power: 3 AA batteries or mains
Screen: LED
Chip: TI SMSO119NC C7424 7423 SN 75493N (x2), SN75494N 7438 (x2)

Keys: short-travel, slightly wobbly, light click

138 x 71 x 43mm, 170g

Announced at $149.95 in April 1972, but introduced at $119.95 in September 1972; £35.50 in the UK in December 1973

Donated by John Horne in 1981 (Cambridge) in 1982



007A

Sinclair: Cambridge Programmable

c. 1977, UK

+ M √ 1/n -+ ⊖ log pg x²

Power: 9v battery or mains supply (added later)
Screen: LED

Keys: short-travel, heavy, bright click

111 x 45 x 22mm, 40g

£29.95 in November 1976, to £15.95 in January 1979

Donated by Chris Taylor (Corpus Christi College, Cambridge) in 1979

This calculator was exchanged by Sinclair despite being over a year old, due to its erratic working



008

Decimo: Memory Man

c. 1975, Japan

+ M -+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: 801 MM 5799NBP/N, 246 D58874N

Keys: short-travel, heavy, prominent click

148 x 88 x 30mm, 200g

£28

Donated by Victor Bugg (Davis Belfield and Everest) in 1979



009

Brother Industries Ltd: Procal 408X

1974, Japan

\+

Power: removable rechargeable battery pack
Screen: fluorescent

Keys: medium-travel, wobbly, light and squashy

1152 x 91 x 41mm, 270g

£87

Donated by Victor Bugg (Davis Belfield and Everest) in 1979



010

Silver-Reed (or Silver Seiko): Prestige

Late 1970s

\+ M √ %

Power: 2 button batteries
Screen: LCD

Keys: concave, long-travel, squashy, muffled click

55 x 91 x 5mm, 30g

£12 in August 1979

Donated by Alex Cook in 1979



011

Hewlett Packard: 41C

c. 1979, Singapore

\+ x² √ 1/n ⊖ log exp pg ab+ cm M

Power: removable rechargeable battery pack
Screen: LCD

Keys: short-travel, light and squashy, no click

187 x 78 x 36mm, 245g

About £170 in December 1973

This calculator was in Hookham's original collection, but didn't give it to the Whipple Museum at the same time as the rest because he was still using it - this may explain why it has the same number as as another in the collection



011

Casio: AS-A

c. 1971, Japan

\+

Power: mains
Screen: LED

Keys: long-travel, light and sticky, deep thud

335 x 130 x 98mm

When this model was designed (in c. 1969) it was significantly less expensive and more portable than the majority of models available



012

Dixons: Prinztronic M

1975, Hong Kong

\+ M %

Power: 4 AAA batteries or mains supply (added later)
Screen: LED

Keys: short-travel, heavy, positive click

119 x 54 x 16mm, 60g

£9.95

Donated by Mr Knight (South Cambridgeshire District Council) in 1979

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



013

Computer Design Corporation: Compucorp

c. 1973, USA

\+ -+ x² √ 1/n π ⊖ log exp pg σ² £

Power: mains
Screen: LED

Keys: medium-travel, light, bright click

356 x 280 x 110mm

This was claimed to be one of the first microcomputers for desktop use, and was was marketed in the UK by Sumlock Anita



013A

Dixons: Prinztronic Mini

c. 1974, Hong Kong

\+ %

Power: 4 AAA batteries
Screen: LED
Chip: TI TMS0803NC.7441-1

Keys: short-travel, heavy, loud click

119 x 54 x 16mm, 60g

Donated by Ray Reader in 1981



014A

Verax: 874

1970s

\+ fdp -+ %

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, light, no click

139 x 86 x 26mm, 140g

Donated by Brian Pane (Heffers, Cambridge) in 1980



015

Decimo: Goldfinger

c. 1976, Japan

+ M -+ % √

Power: 3 button batteries
Screen: LCD

Keys: short-travel, light and squashy, no click

109 x 64 x 7mm, 40g

Donated by Brian Pane (Heffers, Cambridge) in 1980



016A

Chinon: Executron 8M

c. 1974, Japan

+ M -+ % √

Power: 4 UM-2 batteries or mains
Screen: fluorescent

Keys: concave, medium-travel, well-weighted, solid thud

211 x 121 x 48mm, 370g

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



017

Adler: 81S (type EC 24)

c. 1974, Germany

+ M √ %

Power: 4 AAA batteries
Screen: LED
Chip: M PD277C K49946 (NEC)

Keys: medium-travel, heavy and springy, no click

1118 x 73 x 20mm, 100g

£50.50 in August 1974

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



018

Adler: 80C (EC 21)

c. 1975, Germany

+ % ab+

Power: 4 AAA batteries
Screen: LED

Keys: medium-travel, squashy, no click

120 x 73 x 20mm, 110g

£32.94 in August 1974

Donated by Betty Shimel in 1980



019A

Sharp: Elsi Mate EL-8117K

c. 1977, Korea

+ M % √

Power: 2 AA batteries or mains,
Screen: fluorescent

Keys: medium-travel, light and squashy, muffled click

126 x 76 x 28mm, 100g

Donated by Lincoln Office Equipment Company Ltd in 1980



020A

Sinclair: Scientific Programmable

c. 1975, UK

+ M x² √ 1/n -+ ⊖ log exp pg ab+

Power: 9v battery or mains
Screen: fluorescent

Keys: short-travel, light and wobbly, flimsy click

156 x 73 x 33mm, 130g

£27.50 in May 1975, to £27.95 in March 1976

Donated by David Shoesmith (Cambridge University Examination) Syndicate) in 1980



021A1

Sinclair: Cambridge

1973, UK

+

Power: 4 AAA batteries
Screen: LED
Chip: GIMT 3C550

Keys: short-travel, slightly wobbly, loud click

111 x 50 x 18mm, 50g

£32.96 (£27.45 for kit) in December 1973, to £9.95 in October 1975

Donated by Tony Cooke (Catling, Brady and Bliss) in 1980

Also sold as a kit



021A2

Sinclair: Cambridgep

1973, UK

+

Power: 4 AAA batteries
Screen: LED
Chip: GIMT 5 CZL550

Keys: short-travel, wobbly, fairly heavy, positive click

111 x 50 x 20mm, 50g

£11.90

Purchased in 1973 for £11.90

A later, more common version of the Cambridge type 1

SHARP



081

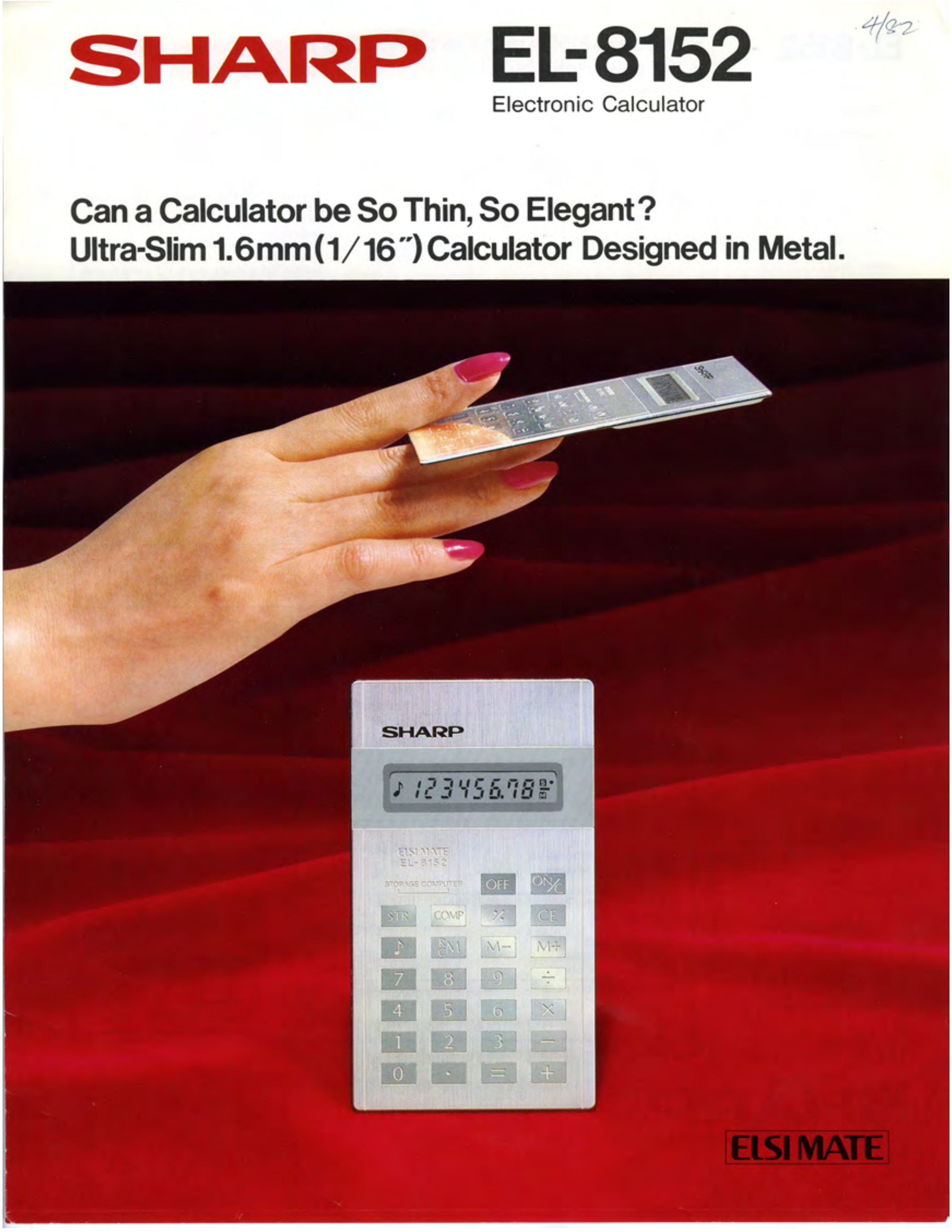
Sharp EL-8

c. 1971

In 1970, Sharp introduced the QT-8B, the first hand-held battery-powered calculator – it could be carried by a handle on the top. The following year the EL-8 was developed by compressing the electronics, and the new calculator was reported in Electronics magazine under the headline "How to Cut a Pocket Calculator in Half." However, the EL-8 was still suitable only for the largest pockets, being more than 60mm thick.

Japanese company Sharp got its name from the “Ever-Sharp Pencil”, developed in 1915. Moving into electrical products, Sharp began making radios and televisions, before (in 1964) producing one of the earliest transistor-based desktop calculators.

Sharp also pioneered the use of integrated circuits and LCD displays, achievements recognised in 2005 when Sharp were awarded the IEEE Milestone in Electrical Engineering and Computing by the Institute of Electrical and Electronics Engineers, of the U.S.A.



Advertisement for Sharp Elsi Mate EL-8152

1982

By the early 1980s, new technologies and components meant that calculators could be smaller and slimmer than in the 1970s. Francis Hookham did not have this particular model of calculator in his collection. However, he cut out and kept this advertisement in his archive, as part of his efforts to document as well as to collect calculators while they were still ubiquitous.

NOT EXACTLY POCKET-SIZED





011

Casio AS-A desktop electronic calculator

c. 1971

It looks large to us (and is shown actual size here), but when this desktop calculator was introduced, it was smaller and more portable – and cheaper – than others on the market, even though not yet pocket-sized. Competition in the calculator market was already clear by 1970: advertisements for this model stressed that Casio knew more than anyone else in the business because they “only make calculators”, and promised simplicity, speed and accuracy for the user.



022

Caltronic: 812

c. 1972, Hong Kong

+ fdp ab+

Power: 9v battery or mains
Screen: LED
Chip: CT 5002I7231, TI7239 SN75492N (x2), RCA CA 3081 E231

Keys: concave, short-travel, well weighted, bright click

146 x 76 x 30mm, 170g

About £20 in 1970-1

Donated by Alan Monro in 1980



023

Commodore: SR7919

c. 1976, UK

+ M -+ x² √ 1/n π ⊖ log exp

Power: 9v battery or mains
Screen: LED
Chip: ITT 548

Keys: medium-travel, squashy, well weighted, muffled click

136 x 59 x 23mm, 70g

£11.45

Donated by Alan Monro in 1980



024

Sharp: EL-8029 'dataclip'

c. 1980, Japan

+ √ %

Power: 2 button batteries
Screen: LCD
Chip: LI3027 806

29 x 139 x 14mm, 50g

Donated by Edward Thackray (Morris Preston) in 1980

The metal case is hinged, with the screen and the keypad in different halves, and two small magnets to make sure it does not fall open



025

Casio: Mini CM-605

c. 1974, Japan

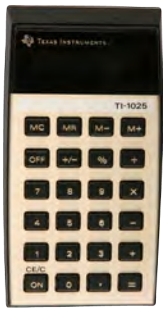
+

Power: 4 AA batteries or mains
Screen: fluorescent

70 x 146 x 30mm, 160g

£32.45 in December 1973

Donated by Robin Upton in 1980



026

Texas Instruments: TI-1025

c. 1977, El Salvador

+ M % -+

Power: 9v battery or mains
Screen: fluorescent

Keys: medium-travel, rock forwards, dull click

138 x 69 x 31mm, 90g

Donated by Texas Instruments in 1980



027

Texas Instruments: TI-1050

c. 1977, USA

+ M -+ √ %

Power: 9v battery or mains
Screen: fluorescent

Keys: medium-travel, well weighted, rock forwards, bright click

138 x 70 x 32mm, 100g

£6.95 in January 1979

Donated by Texas Instruments in 1980



028

Texas Instruments: TI-1200

c. 1975, Italy

+ %

Power: 9v battery or mains,
Screen: LED

Keys: short-travel, heavy, deep click

138 x 66 x 33mm, 110g

£8.50 in March 1975, to £7.90 in late 1976. In the U.S. it was $24.95

Donated by Texas Instruments in 1980



029

Texas Instruments: TI-1250

c. 1975, USA

+ M -+ %

Power: 9v battery or mains
Screen: LED

Keys: short-travel, heavy, rock forwards, solid click

138 x 67 x 34mm, 110g

£14.95 in October 1975, to £8.25 in December 1976; $24.95 in the U.S. in 1975

Donated by Texas Instruments in 1980



030

Texas Instruments: TI-1265

Mid-late 1970s, Italy

+ M -+ %

Power: 9v battery or mains
Screen: fluorescent

Keys: short-travel, well weighted, bright click

138 x 67 x 34mm, 110g

Donated by Texas Instruments in 1980



031

Texas Instruments: TI-1270

c. 1976, Italy

+ M -+ x² √ 1/n π

Power: 9v battery or mains
Screen: LED
Chip: ITT 548

Keys: medium-travel, squashy, well weighted, muffled click

138 x 66 x 33mm, 100g

£10 in autumn 1976; $18.95 in the U.S.

Donated by Texas Instruments in 1980



032

Texas Instruments: TI-1500

c. 1974, Italy

+ %

Power: sealed rechargeable battery pack
Screen: LED
Chip: TMS 0803NC 7445

Keys: short-travel, wobbly and squashy, light, soft click

127 x 63 x 27mm, 80g

$69.95

Donated by Texas Instruments in 1980



033

Texas Instruments: TI-1600

c. 1976, USA

+ % -+

Power: mains
Screen: fluorescent

Keys: short-travel, well weighted, rock forwards, bright click

124 x 70 x 17mm, 80g

$21.95 in 1976

Donated by Texas Instruments in 1980



034

Texas Instruments: TI-1650

c. 1976, Italy

+ M % -+

Power: mains
Screen: fluorescent

Keys: short-travel, well weighted, bright click

124 x 69 x 18mm, 80g

£16 in autumn 1976

Donated by Texas Instruments in 1980



035

Texas Instruments: TI-1700 Dataclip

c. 1977, USA

+ M -+ %

Power: 3 button batteries
Screen: LCD

Keys: short-travel, heavy, slightly wobbly, deep click

26 x 155 x 9mm, 20g

£29.95 in January 1978, to £17 in 1980

Donated by Texas Instruments in 1980

The case has a clip for attaching to shirt pocket or belt



036

Texas Instruments: TI-1750

c. 1977, Japan

+ M % √

Power: button batteries
Screen: LCD
Chip: Toshiba T37099E

Keys: medium-travel, light, deep click

114 x 66 x 9mm, 50g

£18.95 to £12.95

Donated by Texas Instruments in 1980

This was Texas Instruments' first LCD calculator - several years after other manufacturers had started using this type of screen



037

Texas Instruments: TI-2000

1974, Italy

+

Power: 3 AA batteries
Screen: LED
Chip: TMS0135NC C749

Keys: short-travel, light, loud click

130 x 68 x 34mm, 160g

Donated by Texas Instruments in 1980



038A

Texas Instruments: TI-2550

c. 1974, Italy

+ M fdp %

Power: 4 AA batteries or mains
Screen: LED

Keys: short-travel, well weighted, bright click

164 x 76 x 45mm, 210g

$99.95 in 1974; £23.95 in March 1976

Donated by Texas Instruments in 1980



039A

Texas Instruments: TI-2550 II

c. 1975, Italy

+ M fdp % x² √ 1/n

Power: removable rechargeable battery pack
Screen: fluorescent

Keys: short-travel, heavy, bright click

147 x 78 x 31mm, 190g

$49.95 in 1975

Donated by Texas Instruments in 1980



040A

Texas Instruments: TI-2550-IV

1980, Turkey

+ % -+ M

Power: removable rechargeable battery pack
Screen: fluorescent

147 x 77 x 31mm, 170g

£29.95 in March 1979

Donated by Peter Uloth in 1980 (he had purchased it the same year for £4.95)



041

Texas Instruments: TI-5050

c. 1975, USA

+ M % fdp

Power: sealed rechargeable battery pack
Screen: No screen; print out only

Keys: concave, long-travel, light and squashy, loud thud

218 x 95 x 65mm, 620g

$199.95 in 1975

Donated by Texas Instruments in 1980

This was the first handheld printing computer by Texas Instruments – the front casing opens in order to fit the print roll



042B

Texas Instruments: SR-10

c. 1972, Italy

+ -+ x² √ 1/n

Power: mains
Screen: LED

Keys: short-travel, somewhat heavy, prominent click

161 x 74 x 37mm, 240g

$149.95 in late 1972; £55.50 in July 1974

Donated by Texas Instruments in 1980



043

Texas Instruments: SR-11

c. 1973, Italy

+ -+ √ x² 1/n π

Power: mains
Screen: LED

Keys: short-travel, well weighted, bright click

160 x 75 x 38mm, 180g

$119.95 in 1973; £61.95 in July 1974

Donated by Texas Instruments in 1980

This model was the calculator with which Texas Instruments introduced their new small-key layout of the keyboard



044A

Texas Instruments: TI-25

c. 1978, Japan

+ M -+ % x² 1/n π Θ log exp σ²
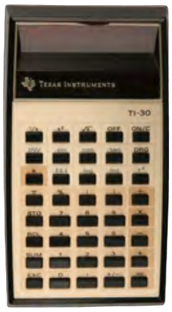
Power: 2 button batteries
Screen: LCD

Keys: medium-travel, fairly light, squashy

133 x 73 x 9mm, 80g

$27.95 in 1978; £20 in September 1979

Donated by Texas Instruments in 1980



045A

Texas Instruments: TI-30

1977, Italy

+ M -+ % x² √ 1/n π ⊖ log exp

Power: 9v battery
Screen: LED
Chip: TMC 0981NL ETP 7814

Keys: medium-travel, heavy, somewhat unstable, muffled click

146 x 78 x 34mm, 100g

£17.95 in November 1976, to £10.95 in January 1979

Donated by Texas Instruments in 1980

Introduced at a low price, helping to change scientific calculators from expensive specialist equipment into an everyday instrument used in schools

045A1

Texas Instruments: TI-30

c. 1976, Italy

+ M -+ % x² √ 1/n π ⊖ log exp

Power: 9v battery, Screen: LED

Keys: short-travel, wobbly, heavy, click on press and release

146 x 78 x 34mm, 100g

£17.95 in November 1976, to £10.95 in January 1979



046

Texas Instruments: SR-40

c. 1977, Italy

+ M -+ % x² √ 1/n π ⊖ log exp

Power: 9v battery
Screen: LED
Chip: A7709 TMC098INL

Keys: short-travel, heavy, prominent click

148 x 77 x 34mm, 100g

£24 in September 1977

Donated by Texas Instruments in 1980



047A

Texas Instruments: SR-50

c. 1974, Netherlands

+ M -+ x² √ 1/n π ⊖ log exp

Power: removable rechargeable battery pack, Screen: LED, Chip: TMS 0521NC 7437, TMS 0501NC 7437

Keys: short-travel, quite wobbly, light, firm click

147 x 78 x 31mm, 160g

$169.95 in 1974

Donated by Texas Instruments in 1980

The 'electronic slide rule' added added trigonometric and hyperbolic functions, as well as logarithms and their inverses, to those previously available



047B

Texas Instruments: SR-50

c. 1974, Netherlands

+ M -+ x² √ 1/n π ⊖ log exp

Power: removable rechargeable battery pack
Screen: LED
Chip: TMC 0501 NL C7424-4, TMC 0521 NL B7433-4

Keys: short-travel, light and wobbly, dull click

147 x 78 x 32mm, 160g

$169.95 in 1974

Donated by Texas Instruments in 1980



048

Texas Instruments: SR-50A

c. 1975, Italy

+ M -+ x² √ 1/n π ⊖ log exp

Power: removable rechargeable battery pack
Screen: LED
Chip: SN27882N F7606 (x2), TMC0501NC E-7616-5 (x2), P602 SN972227P, CD4011AE/TP4011AN M7602

Keys: short-travel, light, prominent click

147 x 77 x 32mm, 140g

£33.95 in May 1975, to £35.95 in March 1976

Donated by Texas Instruments in 1980

This was the last of the Texas Instruments calculators to have colourful blue and orange keys



049

Texas Instruments: SR-51

1975, Netherlands

+ M fdp -+ % x² √ 1/n π ⊖ log exp σ² ○

Power: removable rechargeable battery pack
Screen: LED
Chip: TMC 0523NL D A7501-5, TMC0501NL D 07449-6, 7449 SNT4LS74N, 7502 SN74LS02N

Keys: short-travel, light and wobbly, muffled click

146 x 77 x 31mm, 170g

£83.95 in October 1975

Donated by Texas Instruments in 1980

Panel on rear gives details of conversions the calculator can make



050A

Texas Instruments: SR-51A

c. 1975, Italy

+ M fdp -+ % x² √ 1/n π ⊖ log exp σ² ○

Power: removable rechargeable battery pack, Screen: LED

Keys: short-travel, slight, springy, bright click

147 x 77 x 33mm, 150g

$224.95 in 1975

Donated by Texas Instruments in 1983



051A

Texas Instruments: SR-51-II

c. 1977, USA

+ M -+ % √ x² 1/n π ⊖ log exp ↻ fdp

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, heavy, clear click

146 x 77 x 34mm, 120g

£39.95

Donated by Uniscience in 1981



052

Texas Instruments: TI-51-III

c. 1977, Italy

+ M -+ % x² √ 1/n π ⊖ log exp ↻ fdp

Power: removable rechargeable battery pack
Screen: LED
Chip: TMC1503NL ID 7836

Keys: short-travel, quite wobbly, heavy, low click

147 x 77 x 35mm, 110g

£31.95 in January 1979, to £29.95 in July 1980

Donated by Texas Instruments in 1980



053A

Texas Instruments: TI Programmable 57

c. 1977, Italy

+ M -+ % x² √ 1/n π ⊖ log exp fdp pg

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, heavy, springy, bright click

146 x 77 x 34mm, 110g

$80 in 1977

Donated by Texas Instruments in 1981



054A

Texas Instruments: TI Programmable 59

c. 1977, Italy (calculator) and Netherlands (case)

+ M -+ x² √ 1/n π ⊖ log exp fdp pg σ²

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, wobbly, heavy, bright click

168 x 84 x 43mm (in case), 270g

£249.95 to c. £150

Donated by Texas Instruments

This model could handle up to 960 programming steps, or 100 user memories



054A1

Texas Instruments: TI Programmable 59

c. 1977, Netherlands

+ M -+ x² √ 1/n π ⊖ log exp fdp pg σ²

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, wobbly, light, bright click

162 x 82 x 35mm, 210g

$299.95 in 1977

Program cards inserted into slot below the screen. Rear has a 'Module compartment' containing 'Master Library Module 1 TI 1977'



055A

Texas Instruments: TI Programmer

c. 1977, Italy

+ M -+ bc pg

Power: 9v battery or removable rechargeable battery pack, Screen: LED

Keys: short-travel, heavy, clear click

146 x 77 x 34mm, 100g

$42.50 in 1977

Donated by Texas Instruments in 1982

This model operates not only on base-10, but also on base-8 and base-16.



056

Texas Instruments: Dataman

c. 1977, USA

+ M

Power: 9v battery or mains supply (added later)
Screen: fluorescent
Chip: TMC 1982NL BSP 7745

Keys: short-travel, light and wobbly, muffled click

147 x 88 x 30mm, 130g

£18.95 to £14.95

Donated by Texas Instruments in 1980

Aimed at children over 7, the Dataman can perform calculators as well as play various mathematical games



057A

Facit: 1102

c. 1973, Sweden

+ M %

Power: 9v battery or mains
Screen: LED
Chip: NS 538 MM 5784N, NS11 540 DS8874N

Keys: medium-travel, light, no click

143 x 70 x 30mm, 120g

Donated by G. Rowlinson (Tanner and Hall) in 1980



058

Citizen Business Machines Inc: 820R

c. 1976, Japan

+ M -+ % √

Power: removable rechargeable battery pack
Screen: fluorescent

Keys: medium-travel, squashy, light, no click

150 x 87 x 33mm, 210g

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



059A

Sharp: Elsi Mate EL-8130

c. 1977, Korea

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: touch sensitive membrane, with 'sensor touch' key adding a 'beep' each key press

123 x 67 x 4mm, 60g

$24 in the USA in 1978

This was one of the first calculators with touch keys and a membrane keypad, enabling the calculator to be only 4mm thick



060

Decimo: Strand

1970s, Japan

+ -+ %

Power: 2 AA batteries or mains,
Screen: fluorescent
Chip: NEC MPD491C H59076

Keys: short-travel, heavy, springy, bright click

134 x 77 x 24mm, 100g

Donated by Chris Taylor (Corpus Christi College, Cambridge) in 1980

Made for retail chain W. H. Smith



061

Realtone Electronics Inc: 9202

1973, Japan

+ M fdp % ab+

Power: 4 C batteries or mains
Screen: fluorescent

Keys: long-travel, light, spring back well

191 x 114 x 45mm, 440g

Donated by Derek Moore (Abbey Electrical) in 1980



062A

Dixons: Prinztronic 88P

c. 1975, Japan

+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: TI TMS 0851NCD A7509

Keys: concave, medium-travel, light, no click

139 x 89 x 25mm, 150g

Donated by Derek Bliss in 1981



063

Silver-Reed (or Silver Seiko)

1976, Hong Kong

+ M %

Power: 9v battery or mains
Screen: LED
Chip: TI ZA0571 KFSD7616

Keys: concave, short-travel, heavy, loud click

133 x 68 x 22mm, 70g

Donated by Abbey Electrical in 1980 (they had purchased it in 1976)



064A

Dixons: Prinztronic SR88M

1975, Japan

+ M -+ % √

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: short-travel, light and squishy, spring back well

139 x 89 x 27mm, 150g

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



065

Casio: Personal-mini (CM-607)

c. 1975, Japan

+

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD178C R56329

Keys: medium-travel, light, no click

68 x 142 x 25mm, 130g

Donated by Bingio Meyer in 1980



066
MD2 888m

1976, Singapore

+ M %

Power: 9v battery
Screen: LED

Keys: short-travel, heavy, wobbly, clear click

114 x 68 x 23mm, 80g

About £5 in c. 1977

Donated by David Craig in 1980



067
Sumlock Anita Ltd: Anita 202/SR

c. 1974, Mexico

+ M -+ √ 1/n π ⊖ log exp

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: concave, wedge-shaped, medium-travel, light and springy, no click

155 x 84 x 43mm, 180g

£119.90 in August 1974

Donated by Peter Uloth in 1980

Rear of calculator has a fold-out stand, so that the calculator can sit at a raised angle



068
Hewlett Packard: HP-45

1973, USA

+ M fdp % x² √ 1/n π ⊖ log exp σ² ○

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, heavy, positive click

148 x 77 x 32mm, 170g

£194.70

Donated by Hewlett Packard in 1980

This model, the third made by Hewlett Packard, was the first calculator to have a 'shift' key instead of an 'equals' key



069
Bowmar/Ali Inc: 90911

c. 1972, Mexico

+

Power: 3 AA batteries or mains
Screen: LED
Chip: TMS0801NC 7352-1

Keys: concave, short-travel, slightly wobbly, bright click

149 x 69 x 20mm, 110g

Donated by Hugh Field

Bowmar/Ali, Inc (USA) manufactured LED displays, but from 1970-1 became one of the world's largest calculator producers



070A
Bowmar Canada Ltd: 901 C

1972, Canada

+

Power: sealed rechargeable battery pack
Screen: LED
Chip: TMS 0103NC B 7218 ZA0037, 7216A SN75491N (x2?)

Keys: concave, short-travel, loud click

132 x 75 x 36mm, 160g

Donated by Cuckoo (Reading) in 1982

Bowmar/Ali, Inc (USA) manufactured LED displays, but from 1970-1 became one of the world's largest calculator producers



071
Texet: 800M

Mid-late 1970s, Hong Kong

+ M %

Power: 9v battery or mains
Screen: LED
Chip: TI TMS 0972NL KDSP 7723

Keys: short-travel, heavy, loud click

127 x 72 x 25mm, 70g

Donated by R. Collins (Barratt and Wright, Norwich) in 1980

The Texet company is a calculator and office equipment marketing company based in Manchester, UK



072A
Texet: 880 Executive

1980, Hong Kong

+ M -+ %

Power: 9v battery or mains
Screen: LED
Chip: TMS 0972NL MET 7936 Singapore

Keys: short-travel, heavy, loud click

134 x 74 x 23mm, 80g

Purchased for £2.99 in August 1980



073
Canon: Palmtronic LD-81

c. 1975, Japan

+ % -+ √

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: TM 50855NC AD7546 TI

Keys: concave, medium-travel, well weighted, clear click

129 x 74 x 22mm, 100g

Donated by Matthew Pedol in 1980



074
Olympia Werke AG: LCD1500

c. 1977, Japan

+ M % -+

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3394 6-K

Keys: medium-travel, squashy, light, muffled click

108 x 70 x 13mm, 50g

Donated by Lincoln Office Equipment Co Ltd in 1980



075
Toshiba: LC-810

c. 1977, Japan

+ M -+ %

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: long-travel, squashy, light, muffled click

133 x 70 x 8mm, 60g

Donated by Lincoln Office Equipment Co Ltd in 1980



076A
Sinclair: Oxford 200

c. 1974, UK

+ M %

Power: 9v battery or mains
Screen: LED
Chip: GIMT 5 C594L

Keys: short-travel, wobbly, light, bright click

156 x 74 x 31mm, 120g

£19.95

Donated by Bill Prince (Dents Locksmiths) in 1981



077
Olympia Werke AG: CD43S

c. 1976, Japan

+ %

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD9412C J5869M

Keys: concave, short-travel, light, muffled thud

130 x 79 x 27mm, 120g

Donated by Lincoln Office Equipment Co Ltd in 1980



078
Litton for Imperial Typewriter Company Ltd: Royal

c. 1973, Japan

+

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: C-500 7239, M58212 9115(x2)

Keys: long travel, squashy, light, bright click

149 x 89 x 37mm, 210g

Donated by Bob Dear & Co Ltd in 1980



079
Hitachi: KK 181B

c. 1972, Japan

+ fdp

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: 2JHD3276P, 6264 728 (x2)

Keys: concave, long-travel, light, soft click

180 x 100 x 43mm, 560g

Donated by Bob Dear & Co Ltd in 1980



080
Sharp: Elsi 8002 (EL-8002)

1974, Japan

+ %

Power: 3 AA batteries or mains
Screen: fluorescent
Chip: HD 3623 4K31 B

Keys: short-travel, light and squishy

142 x 87 x 39mm, 170g

Donated by Bob Dear & Co Ltd in 1980



081
Sharp: EL-8

c. 1971, Japan

+

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: concave, long-travel, light, high-pitched click

160 x 100 x 68mm, 530g

$345 in early 1971; may have sold in Japan in late 1970

Donated by Bob Dear & Co Ltd in 1980

This model was one of the first handheld, portable, battery operated calculators, and the number of keys was minimised by doubling up the function keys

FOLLOWING INSTRUCTIONS



Francis Hookham collected instruction manuals, press clippings, and other ephemeral materal to give context to the calculators. In one letter, he stressed this: "The most important thing seems to be to collect as much background information as possible before it is lost" (Francis Hookham to K. C. Sinclair, 16 March 1981)



070A

Bowmar 901 C (above) and instruction manual (opposite)

For easy reference, this Bowmar calculator had brief operating instructions on its back. For the full details, though, you needed to look at the manual, which was designed to look just like the calculator itself.



082

Sharp: Elsi Mate EL-104

c. 1976, Japan

+ √ %

Power: 9v battery or mains
Screen: LED
Chip: HD 363705 6D31

Keys: short-travel, rock backwards, heavy, squashy, faint click

116 x 75 x 21mm, 90g

Donated by John Morley (Henry Reiley Q.S.)



083

Litton for Imperial Typewriter Company Ltd: Royal Digital 5-M

c. 1974, Japan

+ M %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: 15330 A103PE 7409

Keys: medium-travel, squashy, light

149 x 89 x 35mm, 150g

£54.94 in August 1974

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



084A

Sinclair: Oxford Scientific

c. 1976, UK

+ M -+ x² √ 1/n π e log exp

Power: 9v battery or mains
Screen: fluorescent

Keys: short-travel, heavy, bright click

155 x 73 x 31mm, 120g

Donated by Sinclair's advertiser in 1980



085

Sinclair: Oxford Universal

1976, UK

+ M % x² √ 1/n

Power: 9v battery or mains
Screen: fluorescent

Keys: short-travel, heavy, stiff, bright click

155 x 73 x 34mm, 110g

Donated by Dick Last in 1980



086

Rockwell International: House of Fraser Model 8F

1975 , UK

+ %

Power: 9v battery or mains
Screen: LED
Chip: B5000PB/7541

Keys: long travel, positive click

149 x 73 x 22mm, 100g

Donated by Peter Uloth in 1980 (he had purchased it in 1976-7 for c. £9)

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



087A1

Sinclair: Sovereign

1976, UK

+ M % x² √ 1/n

Power: 2 button batteries
Screen: LED
Chip: Mostek MK 50321N Malaysia, NS 636 DS8871N

Keys: short-trave, heavy, faint click

141 x 37 x 12mm, 70g

Purchased for £1 in 1980 from Woolworths (Cambridge)



087A2

Sinclair: Sovereign

c. 1976, UK

+ M % x² √ 1/n

Power: 2 button batteries
Screen: LED

Keys: flush with calculator

140 x 36 x 12mm, 80g

Donated by Noel Cunningham-Reid in 1986



088

CBM Business Machines Ltd: Commodore Minuteman MM3MT

1970s, UK

+ M

Power: sealed rechargeable battery pack
Screen: LED

Keys: medium-travel, light and bouncy

104 x 77 x 27mm, 140g

$345 in early 1971; may have sold in Japan in late 1970

Donated by Chris Gibb (Holy Trinity) in 1980

The owner before Hookham has written his name below the screen



089
Sharp: Elsi Mate EL-8116

c. 1976, Japan

+ M -+ % √

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, squashy, light, no click

127 x 76 x 22mm, 120g

Donated by John Morley (Henry Reiley Q.S.) in 1980



090
Hanimex: BCM 901

1975-6, Hong Kong

+ M %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: GIMT6 CF-595

Keys: short-travel, heavy, loud click

135 x 83 x 24mm, 130g

Donated by Noel Hartley (Sidney Sussex College, Cambridge) in 1980

Keys are concave, so they fit the shape of the finger and are nearly flush with the calculator



091
Sharp: Elsi Mate EL-8144

c. 1979, Japan

+ cm %

Power: 4 button batteries
Screen: LCD
Chip: SC3961 9.G

Keys: touch sensitive keypad

1102 x 65 x 11mm (in wallet), 70g

Donated by Philip Smith (Tiki Knit Leicester Ltd) in 1980



092A
Casio: Mini-Card MC-34

c. 1980, Japan

+ M % x² √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T6008S O.D, Crystal -CZ-12-S-1

Keys: short-travel, quite squishy, light

83 x 53 x 5mm, 30g

£11.95 in August 1980

Donated by Tony Cooke (Catling Brady & Bliss) in 1980



093
Dixons: Prinztronic Mini 7

c. 1975, Hong Kong

+ % √

Power: 4 AAA batteries
Screen: LED

Keys: slightly concave, short-travel, heavy, loud click

120 x 55 x 16mm, 60g

£5.95 in January 1975

Donated by Sheila Stevens in 1980

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



094
C.Itoh: ESR-87

Late 1970s, Taiwan

+ M -+ x² √ 1/n π log exp σ²

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3636

Keys: medium-travel, quite light and flimsy, muffled thud

125 x 69 x 8mm, 60g

Donated by Dixons in 1981



095A1
Casio: Mini Card LC-78S

c. 1978, Japan

+ M % √

Power: button batteries
Screen: LCD
Chip: NEC D896G23 K8X486

55 x 90 x 5mm, 30g

£19.95

Donated by John Chaplin in 1980



096

Tealtronic: SM-8

1973, Germany?

+ M fdp %

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: long-travel, wobbly, light, no click

72 x 157 x 30mm, 230g

£62.50 in September 1973, to £56 in January 1974

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980

TEAL sold calculators under their own name as well as supplying to Toshiba and Hitachi, but went bust in 1978 after a dramatic drop in calculator prices



097

Sharp: Elsi Mate EL-8031

c. 1978, Japan

+ % √

Power: 2 AA batteries or mains,
Screen: fluorescent
Chip: HD37320 7J33

Keys: medium-travel, squashy, light, no click

130 x 79 x 20mm, 120g

Donated by Alan Dupuy (Winston House) in 1980



098

Casio: LC-822

c. 1978, Japan

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light

109 x 61 x 8mm, 40g

£13.95 in July 1978

Donated by Stanley Read in 1980



099

Decimo: Dinky LC-705

Late 1970s, Taiwan

+ cm % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3567 8A

Keys: medium-travel, light, muffled thud

90 x 56 x 8mm, 30g

Donated by John Chaplin in 1980



100

APF Electronics Inc: Mark 42

1970s, Hong Kong

+ %

Power: 9v battery or mains
Screen: LED
Chip: TI TMS 0972NL KMBT 7827 Singapore

Keys: short-travel, heavy, deep click

124 x 64 x 26mm, 60g

Donated by James Bennett in 1980



102A

Decimo: Vatman Mini II

c. 1978, Japan?

+ -+ % √

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: concave, short-travel, springy, light, no click

125 x 75 x 21mm, 80g

£6.95

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



103A

Decimo: Vatman Mini MII

c. 1975, Japan?

+ M % √

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: concave, medium-travel, light, no click

125 x 75 x 20mm, 80g

£6.95

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



104A1

Decimo: Vatman

c. 1974, Japan

+ -+ %

Power: 4 AA batteries or mains,
Screen: fluorescent
Chip: M58618-BIP 532D

Keys: concave, medium-travel, squashy, light, no click

131 x 80 x 30mm, 140g

Donated in 1980



104A2
Decimo: Vatman

c. 1976, Japan

+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD3633 4J22

Keys: medium-travel, well weighted, no click

131 x 80 x 30mm, 140g

About £12.95

Donated by John Horne in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



105A1
Decimo: Vatman

c. 1974, Japan

+ % √

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: Sharp LI2006 512 023

Keys: concave, medium-travel, squashy, light, no click

131 x 80 x 30mm, 130g

Donated by John Cross (Johnson and Bailey) in 1980



105A2
Decimo: Vatman

c. 1974, Japan

+ % √

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: NEC DI803C E8858D

Keys: medium-travel, squashy, light, no click

131 x 80 x 30mm, 130g

Donated by Leo (St Johns College, Cambridge) in 1981



106A
Commodore: 796M

c. 1976, UK

+ M %

Power: 9v battery or mains
Screen: LED
Chip: Commodore 30 98MT 4676

Keys: short-travel, wobbly, squashy, no click

135 x 59 x 23mm, 70g

£4.95 in 1978-9

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



107
Commodore: 899A

c. 1976, UK

+ M -+ % x² √ 1/n π

Power: 9v battery or mains
Screen: LED

Keys: concave, medium-travel, squashy, light, muffled click

145 x 71 x 24mm, 90g

£5.95

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



108A
Commodore: GL-976M

c. 1975, Japan

+ M %

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: short-travel, wobbly, squashy, light

139 x 75 x 28mm, 170g

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



109
Commodore: 9R-25

c. 1976, Japan

+ M % x² √ 1/n

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: concave, medium-travel, slightly wobbly, light, muffled click

139 x 75 x 28mm, 190g

£12.45

Donated by Micheal Marriott (Eaden Lilley, Cambridge) in 1980



110
Lloyd's Electronics International: Accumatic E334

1975-6, Taiwan

+ M √ 1/n π θ log

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: CF596 7605

Keys: medium-travel, springy, light

136 x 86 x 28mm, 170g

Donated by Brian Pane (Heffers, Cambridge) in 1980

TEXAS INSTRUMENTS



Around 20% of the calculators in the Francis Hookham collection were made by Texas Instruments. Many of them (although not these two) were given to Hookham by the company, in response to requests for calculators for his collection, including broken ones that would otherwise have been thrown away.



006A2 (opposite) and 006A3 (above)

Texas Instruments TI-2500 Datamath

1972

The TI-2500 Datamath (shown here actual size) was the first consumer pocket calculator by Texas Instruments, although they were involved in the industry earlier and supplied parts to others. Hookham did not acquire these calculators in the early 1970s, however – he was given them in 1980 by Brian Pane, of Heffers Bookshop in Cambridge.



318

Sinclair Executive (left) and advert (opposite)

c. 1972

In the early 1970s, what were called 'pocket calculators' were often too large or thick to slip neatly into a shirt or jacket pocket.

In 1972, Sinclair introduced the Executive (shown here actual size), which was smaller and thinner than any other calculator on the market, at less than 1cm thick. The breakthrough that allowed this reduction in size was a new way of powering the calculator chips, by 'pulsing' them, so that it could run for about 20 hours on three button batteries.

The Sinclair Executive was also groundbreaking in its design, winning an award from the Design Council in 1973, and being added to the collections of the Museum of Modern Art in New York in 1974. Design Journal quoted the museum as saying it had been chosen because it "achieved those formal ideals of beauty which have become the major stylistic concepts of our time." (1974, p. 308)

This model was advertised in a way that emphasised it as the smallest and lighest, and targeting a business market. The advertisment opposite was clipped from the Telegraph Magazine by Francis Hookam, and annoted to show it had appeared in February 1973.



The other pocket calculators fit neatly into your briefcase.

The Sinclair Executive is the world's smallest and lightest electronic calculator. How light? Just 2½ oz. Less than the bunch of keys you're probably carrying now.

And how small? It's 5½ inches long, 2¼ inches wide, and an incredible ⅜ inch thick – same as a cigarette.

Yet this featherlight wafer of British technology offers more than some desk-top models.

With its brilliant 8-digit display it adds and subtracts, of course. It multiplies and divides – and by a constant figure over and over again, if you want it to (to work out discounts for example, for currency conversions, or for percentages). It works to 2, 4 or 6 decimal places – or it allows the decimal point to float. It rounds off automatically to the nearest decimal place.

The secret of the Sinclair Executive

The Executive's 'brain' is an electronic marvel – a 7,000-transistor integrated circuit (the largest ever produced for commercial use).

But the real genius lies in the circuitry linking the brain, the batteries, the keyboard and the display. Circuitry soaks up power, which is why other pocket calculators have to use large batteries – and that, in turn, makes them bulky.

In the Executive, the Sinclair flair for miniaturisation has developed circuitry which absorbs virtually no power. Tiny hearing-aid batteries take up the minimum space and, used from time to time during the day, will last for several weeks.

Yet small though it is, the Executive is far from frail. Every one is covered by a five-year guarantee.



Smallest . . . lightest . . .
exceptionally powerful!

London: Alfred Dunhill; Asprey's; Austin Reed; Carrington's; Chappell's; Dixons; Davis & Kays; Fortnum & Mason; Harrods; Henry's Radio; Lasky's; Lillywhites; Selfridges; Simpsons; G. W. Smith (Radio); Wallace Heaton. **Bournemouth:** Beales of Bournemouth. **Edinburgh:** Jenners of Princes Street. **Liverpool/Manchester:** Jarratt's; Watson Prickard. **Branches of the Lewis Group;** and other leading stores.

But if you have any difficulty, we'll cheerfully send you one direct. Post us a cheque for £79, and an Executive is yours for 10 days on a money-back undertaking.

Sinclair Radionics Ltd. (Dept 1),
London Road, St Ives, Huntingdonshire, PE17 4HJ
St Ives (0480) 64311.



111

Sharp: Elsi Mate EL-120

1970s, Japan

+

Power: 3 AA batteries
Screen: fluorescent
Chip: 3KI HD3583

Keys: medium-travel, squishy, heavy

64 x 170 x 21mm, 130g

Donated by Mr Germany (Bureau Contacts, Newnham) in 1981

This was the first type of pocket calculator to be released in Australia



112

Iain Jones International, Ltd: IJI Mini A

1973, USA

+

Power: 9v battery or mains
Screen: LED
Chip: 7236 C-500 TI SN75491N 7244 (x2), TI SN75492N 7244 (x2)

Keys: short-travel, heavy, bright click

148 x 79 x 26mm, 170g

Donated by Mr Germany (Bureau Contracts, Newnham) in 1981

Other models in the Mini-A series have a brushed aluminium plate reading Addison on the top right (where there is a space on this model)



113A

Rockwell International: 18R

c. 1976, Hong Kong

+ M %

Power: 9v battery or mains
Screen: LED
Chip: B5000M-5 7622 Korea

Keys: tall, dome-shaped, short-travel, well weighted, bright click

155 x 76 x 22mm, 100g

£7.50

Donated by John Ayres (Johnson & Bailey) in 1981

This calculator was also built as the House of Fraser model 18F in a dark blue case with white buttons



114

Dixons: Prinztronic SR99P

c. 1975, Japan

+ -+ % √ π

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD940C R5X75M

Keys: medium-travel, well weighted, squashy, no click

124 x 80 x 20mm, 110g

Donated by Mr Algar (Algar Signcraft) in 1981

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



115A

Decimo: Super Vatman

c. 1978, Japan

+ M -+ % √ π

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: short-travel, wobbly, no click

132 x 80 x 31mm, 130g

About £16.95

Donated by Mr Miller (Ridgeons, Cambridge) in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



116

Adler: 81S (type EC 24B)

1973-4, Germany

+ M fdp -+ % √ π

Power: 4 AAA batteries or mains
Screen: fluorescent
Chip: TI TMS 1044NL KS 7638

Keys: short-travel, springy, no click

120 x 74 x 20mm, 120g

Donated by Ian Kinnieat (Cambridge Instrument Company) in 1981



117

Sinclair: President

c. 1978, Hong Kong

+ M -+ % √ x^2 1/n π

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NS 1728 MM 57134ENW/N

Keys: medium-travel, light and squashy, soft thud

92 x 162 x 29mm, 180g

£17.95

Donated by Ken Hichisson in 1981

Sinclar's only calculator not to be made in England - prices were so competetive that manufacturing had moved to Hong Kong



118

EBL: 612

Early-mid 1970s, Hong Kong

+ fdp

Power: 5 AA batteries or mains
Screen: LED

144 x 81 x 34mm, 170g

About £4 in c. 1976

Donated by Mr Bryce-Smith in 1981



119

Facit: Facit 2003

1980, Taiwan

+ M −+ % x² √ 1/n π exp

Power: 2 button batteries
Screen: LCD
Chip: Sharp LI 3009M 909

Keys: medium-travel, light, soft click

114 x 73 x 11mm, 80g

Donated by Facit in 1981

This model sold 60,000 units between autumn 1978 and spring 1981



120

Facit: Facit 2004

1980, Hong Kong

+ %

Power: 2 button batteries
Screen: LCD
Chip: Sharp LI3040 909

Keys: short-travel, quite wobbly, spashy, muffled thud

70 x 111 x 9mm, 50g

Donated by Facit in 1981



121

Facit: 1110

1970s, Sweden

+ M √ 1/n π ⊖ log

Power: 9v battery or mains
Screen: LED
Chip: CF596 7536 NS/522 DS/DM 8864N

Keys: concave, medium-travel, light

144 x 69 x 33mm, 110g

Donated by Donald Mackay in 1981



122

Executron: 4M

Early-mid 1970s, Hong Kong

+ −+ % M

Power: 9v battery or mains
Screen: LED
Chip: TI TMS 0972NL MBT 7936 Singapore

Keys: short-travel, heavy, loud click

131 x 67 x 24mm, 70g

Donated by Dixons in 1981



123A

Executron: M8

Late 1970s, Hong Kong

+ M −+ % √

Power: 2 button batteries
Screen: LCD
Chip: NEC D888G E96595

Keys: short travel, heavy, loud click

116 x 66 x 9mm, 50g

Donated by Dixons in 1981



124

Casio: 103-MR

c. 1975, Japan

+ M fdp √ %

Power: 4 AA batteries or mains,
Screen: fluorescent
Chip: HD 3692 5G12

160 x 99 x 35mm, 220g

Donated by Brian Pane (Heffers, Cambridge) in 1981



125A

Rockwell International: Automatic Percent 8R

c. 1975, Hong Kong

+ %

Power: 9v battery or mains
Screen: LED

Keys: tall, dome-shaped, short-travel, well weighted, bright click

155 x 76 x 22mm, 110g

£6.75

Donated by Brian Pane (Heffers, Cambridge) in 1981

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



126A

Casio: Personal M-1

c. 1977, Japan

+ M % √

Power: 2 AA batteries or mains,
Screen: fluorescent
Chip: NEC MPD 577C R6746M

Keys: medium-travel, squashy, quite light

123 x 75 x 21mm, 90g

£8.95

Donated by Brian Pane (Heffers, Cambridge) in 1981



127

Tudor: Mini Card MD-811

c. 1980, Taiwan

+ M -+ % √

Power: 2 button batteries
Screen: LCD
Chip: Sharp LI 3023M 002

Keys: short travel, squashy, light, no click

62 x 101 x 8mm, 40g

Donated by Jim Swainland in 1981

This calculator was given away at Christmas 1980 as part of a Valentine Paints promotion



128A

Commodore: SR 4148R

c. 1975, UK

+ M -+ x^2 √ 1/n π ⊖ log exp σ^2

Power: sealed rechargeable battery pack
Screen: LED

Keys: medium-travel, well weighted, squashy, muffled thud

152 x 79 x 35mm, 160g

Donated by Mary Hind in 1982



129

Dixons: Prinztronic 48G

1979 , Singapore

+ M -+ % x^2 √ 1/n π

Power: 2 AA batteries or mains,
Screen: fluorescent
Chip: TI TMS 1045 NI 7945 Singapore

Keys: short-travel, heavy, bright click

125 x 72 x 21mm, 90g

Donated by Dixons in 1981

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



130A

Dixons: Prinztronic Micro LC80

Late 1970s-early 1980s, Taiwan

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, squashy and light, no click

54 x 90 x 5mm, 30g

Donated by Dixons in 1982



131

Dixons: Prinztronic LC-303 Ultraslim

Late 1970s-early 1980s

+ M % √

Power: 2 button batteries
Screen: LCD
Chip: Sharp LI 3023M 907

Keys: short-travel, light, light click

98 x 57 x 5mm, 20g

Donated by Dixons in 1981



132A

Dixons: Prinztronic LCD 53B

Late 1970s-early 1980s, Hong Kong

+ M % √

Power: 2 AA batteries
Screen: LCD

Keys: medium-travel, heavy, soft click

142 x 69 x 18mm, 80g

Donated by Dixons in 1982



133A

Dixons: Prinztronic LCD 2000

Late 1970s-early 1980s, Hong Kong

+ M -+ % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3603 8.H

114 x 69 x 10mm, 40g

Donated by Dixons in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



134A

Dixons: Prinztronic LCD 3500

Late 1970s-early 1980s, Taiwan

+ M -+ % √

Power: 2 button batteries
Screen: LCD
Chip: NEC D1832G EO727K

Keys: medium-travel, wobbly, light and squashy, faint thud

124 x 71 x 11mm, 50g

Donated by Dixons in 1981



134A

Dixons: Prinztronic LCD 3500

Late 1970s–early 1980s, Taiwan

+ M -+ % √

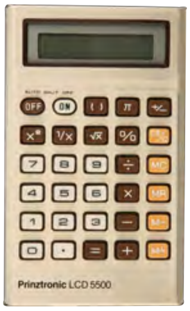
Power: 2 button batteries
Screen: LCD
Chip: NEC D1832G EO727K

Keys: medium-travel, wobbly, light and squashy, faint thud

124 x 71 x 11mm, 50g

Donated by Dixons in 1981

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



136

Dixons: Prinztronic LCD 5500

Late 1970s–early 1980s, Taiwan

+ M -+ % x^2 √ 1/n π

Power: 2 button batteries
Screen: LCD
Chip: NEC D1831G KO4265

Keys: medium-travel, quite wobbly, squashy, light, soft click

110 x 65 x 10mm, 40g

Donated by Dixons in 1981



137A

Dixons: Prinztronic LCD 6000

Late 1970s–early 1980s

+ M -+ % x^2 √ 1/n π

Power: 2 button batteries
Screen: LCD
Chip: NEC D1831G EO8085

Keys: medium-travel, well weighted, muffled click

99 x 59 x 8mm, 40g

Donated by Dixons in 1981



138A

Dixons: Prinztronic BSC 402

c. 1979, Taiwan

+ M -+ x^2 √ 1/n π θ log exp σ^2

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, light, dull click

129 x 69 x 8mm, 60g

Donated by Dixons in 1982



139

Dixons: Prinztronic BSC 502

c. 1980, Taiwan

+ M -+ x^2 √ 1/n π θ log exp σ^2

Power: 3 button batteries
Screen: LCD
Chip: NEC D1851G K83206

Keys: short-travel, light, squashy and creaky, no click

134 x 69 x 10mm, 70g

Donated by Dixons in 1981



140A

Dixons: Prinztronic BSC 602

Late 1970s–early 1980s, Taiwan

+ M -+ x^2 √ 1/n π θ log exp σ^2

Power: 2 AA batteries
Screen: LCD

Keys: medium-travel, very wobbly, springy, muffled click

139 x 74 x 18mm, 70g

Donated by Dixons in 1982



141

Dixons: Prinztronic BSC 702

Late 1970s–early 1980s, Taiwan

+ M -+ x^2 √ 1/n π θ log exp σ^2

Power: 2 button batteries
Screen: LCD
Chip: NEC D1852G E98086

Keys: medium-travel, light and flimsy, hollow click

129 x 69 x 9mm, 60g

Donated by Dixons in 1981



142A

Dixons: Prinztronic MSC 802

Late 1970s–early 1980s, Taiwan

+ M -+ x^2 √ 1/n π θ log exp σ^2

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, light, bright click

130 x 70 x 9mm, 60g

Donated in 1984



143
Dixons: Prinztronic SQ21

Late 1970s–early 1980s, Taiwan

+ M %

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light, springy, soft click

91 x 57 x 7mm, 40g

Donated by Dixons in 1981

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



144
Dixons: Prinztronic Micro SQ 27

Late 1970s–early 1980s, Taiwan

+ M %

Power: 2 button batteries
Screen: LCD

Keys: short-travel, squashy, light, no click

54 x 90 x 7mm, 30g

Donated by Dixons in 1981



145
Dixons: Prinztronic SQ50

Late 1970s–early 1980s, Taiwan

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, light, very soft click

99 x 59 x 8mm, 40g

Donated by Dixons in 1981



146
Great Wall Electronic Co: Hornet Mini SR-26

c. 1976, Taiwan

+ M −+ % √

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: A5901PA 7534

Keys: slightly concave, medium-travel, light, soft click

122 x 75 x 24mm, 110g

Donated by Decimo in 1981

The circuitry for this model was made by Rockwell



147
Realtone Electronics Inc: Conversion Master KP-60

1970s, Hong Kong

+ M %

Power: removable rechargeable battery pack
Screen: fluorescent
Chip: WCS 2527 80062174-3

Keys: medium-travel, light, squishy

152 x 85 x 33mm, 160g

Donated by Decimo in 1981



148
Unisonic: CB-14

1979

+ M −+ % x² √ 1/n

Power: 3 AAA batteries or mains
Screen: fluorescent
Chip: TI TMS1071NL KBSLD 7628

Keys: medium-travel, light, squishy, positive click

145 x 70 x 13mm, 80g

Donated by Decimo in 1981

At the top of the rear there are two clips, for clipping to a shirt pocket



149
Texet: Trader

1970s, Japan

+ M −+ % √ 1/n π exp

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC D1812C K93086

Keys: medium-travel, light, springy, no click

132 x 80 x 19mm, 100g

Donated by Decimo in 1981

The Texet company is a calculator and office equipment marketing company based in Manchester, UK



150
Imperial Business Equipment Ltd: Imperial 91S

c. 1973, Japan

+ M fdp % √ π

Power: 4 AAA batteries or mains
Screen: fluorescent
Chip: HD 36265 5L13

Keys: short-travel, well weighted, faint click

120 x 73 x 20mm, 100g

Donated by Decimo in 1981



151

MBO: Monarch II

1970s, Japan

+ M √ 1/n π ⊖ log exp

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: GF598 7651

Keys: medium-travel, very light, quite springy

134 x 65 x 19mm, 90g

Donated by Decimo in 1981



152

Decimo: Ready Reckoner

1974

+ %

Power: 4 MN9100 batteries or mains
Screen: LED
Chip: TI TMS0803NCD 7447

Keys: medium-travel, light, squishy, flimsy click

149 x 66 x 17mm, 80g

Donated by Decimo in 1981



153

Decimo: International

c. 1973

+ M %

Power: 4 MN9100 batteries or mains
Screen: LED
Chip: 15330 A1030PE 7436

Keys: medium-travel, variable heaviness, bright click

148 x 67 x 17mm, 90g

Donated by Decimo in 1981



154

Decimo: Vatman Spy

1975

+ % √

Power: 9v battery or mains
Screen: LED
Chip: Mostek MK50282N ASSB Malaysia 7546

Keys: short-travel, heavy, wobbly, muffled click

97 x 62 x 22mm, 60g

£10.95

Donated by Decimo in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



155

Decimo: Vatman Super Spy

c. 1975

+ M % x² √ 1/n

Power: 2 AA batteries or mains
Screen: LED
Chip: FS 1732-F 7520

Keys: almost flush with calculator, short-travel, heavy, solid click

97 x 62 x 22mm, 60g

£14.50

Donated by Decimo in 1981



156

Decimo: Vatman Counter Spy

c. 1976

+ M %

Power: 2 AA batteries or mains
Screen: LED
Chip: A5300PA 7519

Keys: short-travel, well weighted, low click on press and thud on return

198 x 61 x 22mm, 60g

£13.50

Donated by Decimo in 1981



157A

Decimo: 2001

Mid 1970s

+ fdp -+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: Toshiba T3130 3J

Keys: long-travel, squashy, light, no click

132 x 81 x 25mm, 130g

Donated by Decimo in 1981

No model name is marked on this calculator, but it is very similar to the many 'Vatman' models



158

Decimo: International

c. 1973, Japan

+ M fdp % √ π

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: MA8168B 262H

Keys: long-travel, light and squashy, no click

132 x 82 x 25mm, 140g

Donated by Decimo in 1981



159

Decimo: Memory Man II

c. 1975, Taiwan

+ M %

Power: 9v battery or mains
Screen: LED
Chip: B5000CC 7620

Keys: medium-travel, squishy, light, no click

133 x 73 x 22mm, 70g

About £16.95

Donated by Decimo in 1981



160

Decimo: Handy (508A)

c. 1976, Singapore

+ %

Power: 9v battery or mains
Screen: LED
Chip: Mosteck MK50312N Phillipines 7628

Keys: short-travel, slightly wobbly, well weighted, loud click

109 x 71 x 22mm, 80g

Donated by Decimo in 1981



161

Decimo: Handy M (908B)

c. 1976, Singapore

+ M %

Power: 9v battery or mains
Screen: LED
Chip: 7552 CF595

Keys: medium-travel, springy, quite light, muffled click

135 x 72 x 22mm, 100g

Donated by Decimo in 1981



162

Decimo: Vatman Executive (type 1)

c. 1975

+ %

Power: 2 AA batteries or mains
Screen: LED
Chip: TI TMS0803NCD 7437

Keys: short-travel, well weighted, bright click

127 x 76 x 18mm, 100g

£13.95

Donated by Decimo in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



163

Decimo: Scientific Superman

c. 1976, Hong Kong

+ M -+ √ 1/n log exp

Power: 2 AA batteries or mains
Screen: LED
Chip: TI TMS 1001NCD A7449

Keys: short-travel, well weighted, bright click

122 x 76 x 18mm, 100g

£24.95

Donated by Decimo in 1981



164

Decimo: Financial Executive

Late 1970s, Hong Kong

+ M -+ % √ £

Power: 2 AA batteries or mains
Screen: LED
Chip: A4561PR 7452

127 x 77 x 19mm, 100g

Donated by Decimo in 1981



165

Decimo: Decimo-I da Vinci

c. 1976

+ -+ %

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD941C H61026

Keys: wedge-shaped, short-travel, well weighted, bright click

138 x 80 x 23mm, 100g

Donated by Decimo in 1981



166

Decimo: Decimo-III da Vinci

1970s

+ M % √

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD278C H61086

Keys: wedge-shaped, short-travel, well weighted, bright click

138 x 80 x 23mm, 120g

Donated by Decimo in 1981



167

Decimo: 2001

1975, Hong Kong

+ M -+ √ 1/n π ⊖ log exp

Power: 3 AA batteries or mains
Screen: LED
Chip: A4001PC 7507

Keys: short-travel, slightly wobbly, heavy, positive click

135 x 70 x 19mm, 85g

Donated by Decimo in 1981



168

Decimo: 2001-e

c. 1975, Hong Kong

+ M -+ √ 1/n π ⊖ log exp

Power: 2 AA batteries or mains
Screen: LED
Chip: A4800CC 7603

Keys: short-travel, heavy, faint click

147 x 75 x 19mm, 125g

Donated by Decimo in 1981



169

Decimo: Vatman Scientific

c. 1976

+ M -+ x² √ 1/n π ⊖ log exp

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD951C R57Z066

Keys: concave, short-travel, light, bright click

157 x 85 x 28mm, 160g

£39.95

Donated by Decimo in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



170

Decimo: Vatman Extra

c. 1976, Japan

+ -+ % √ π

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD940C H5327M

Keys: medium-travel, slightly wobbly, springy, light, no click

127 x 76 x 18mm, 100g

£13.95

Donated by Decimo in 1981



171

Decimo: Vatman Extra M

c. 1976, Japan

+ M -+ √ %

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD 276C H59349

Keys: concave, medium-travel, heavy, no click

125 x 81 x 21mm, 120g

£17.95

Donated by Decimo in 1981



172

Decimo: Vatman Extra S

c. 1976, Japan

+ M -+ % √ x² 1/n π

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD946C 5RY496

Keys: slightly concave, medium-travel, well weighted, springy, soft click

124 x 82 x 20mm, 110g

£18.95

Donated by Decimo in 1981



173

Decimo: Vatman Popular

Late 1970s, Japan

+ √ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD36290 5H21

Keys: medium-travel, wobbly, squashy, no click

130 x 80 x 31mm, 130g

Donated by Decimo in 1981



174

Decimo: Super Vatman II

c. 1976, Japan

+ M -+ % √

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A5911CA 7541

Keys: short-traval, squashy, light, no click

131 x 80 x 29mm, 130g

Donated by Decimo in 1981

THE TOUCH OF GENIUS?



Hand held calculators had to feel good to carry and use – and manufacturers paid attention to this. Keys needed to be responsive, and many were designed to click reassuringly so that a user knew that the calculator had received an input. Different types of keys and switches mean that different calculators feel very different to use, and the action of the keys is described throughout this catalogue.

As calculators became thinner, touch-sensitive or membrane keypads were introduced, and some had electronic noises or musical tones to replace the physical click of a key switch. These new touch-based technologies were used by some manufacturers to experiment with different modes of data entry, and a wider range of possible inputs.



059A

Sharp Elsi Mate EL-8130A (left) and advert (opposite)

1977

Manufacturers sought constantly to create slimmer and lighter calculators – and that meant innovating with the keys, to make them thinner. This one had an early touch-sensitive panel, but to reassure users who were used to satisfying click of keys on older calculators, Sharp added musical notes to reassure the user that the key press had been registered, a feature that meant they nicknamed this model the 'pinger'.



411

Casio Databank PF-8000

c. 1985

Calculator manufacturers experimented in the 1980s with new ways for a user to input characters or numerals – this Casio Databank could recognize finger motions for 48 different characters, and instructions for them are on the inside cover opposite the calculator in its case.

LIGHTING UP NUMBERS



357

Litronix 2260R Exponential

1974

This calculator has an LED display.



315

Rockwell Advanced Slide Rule 61R

c. 1974

This calculator has a fluorescent display.

Early calculators had either flourescent or LED displays. Both types of display emitted light, but this meant they had high power requirements, which presented challenges to designers trying to make calculators as small as possible.

Flourescent displays (more correctly known as vacuum flourescent displays) work by causing phosphorous to glow when it is hit by electrons – the same technology used in old CRT television screens. The colours ranged from blue to green, but most calculator displays were green. To begin with, there was a separate tube for each digit of the display, but in the early 1970s displays were developed that integrated all the digits into one tube.



329

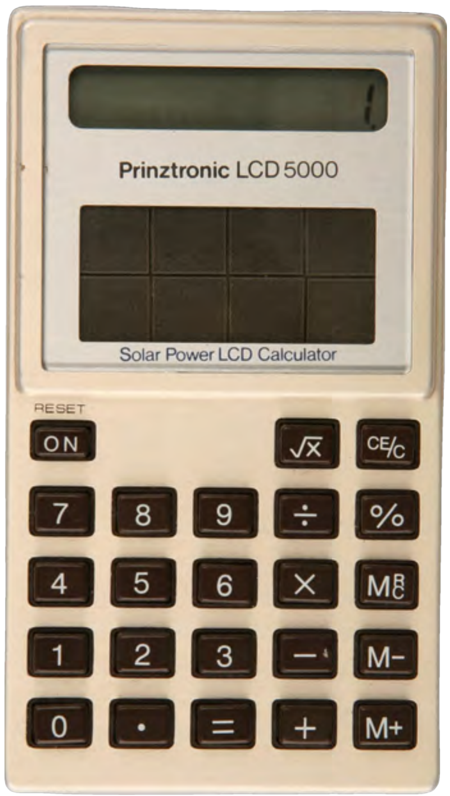
Canon Card LC-61T

c. 1979

Unlike many calculators, which hid the battery casing on the back, this model made a design feature of it on the the front, showing the user how little power it took to run.

Liquid crystal display (LCD) screens needed less power, and could be powered by thin button batteries or by solar cells.

"The concerned environmentalist can now calculate the downfall of society without eating into the world's resources in the process. A new calculator that is coming on to the market in the United States does not have an on/off switch - it doesn't need an on/off switch because the power comes from a small panel of solar cells. The cells' output is such that if there is enough light around for the user to see the calculator there is probably enough light to power it"
(New Scientist, July 1978).



272A

Prinztronic LCD 5000

Late 1970s/early 1980s.



175
Decimo: Vatman Vantage

c. 1975, Japan

+ % √

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD36290 5L41

Keys: medium-travel, squashy, light, no click

131 x 80 x 30mm, 120g

Donated by Decimo in 1981

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



176
Decimo: Vatman H

Late 1970s, Japan

+ -+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A5911CA 7539

Keys: medium-travel, squashy, no click, a little sticky

131 x 80 x 30mm, 120g

Donated by Decimo in 1981



177
Decimo: Super Vatman SS I

c. 1976, Japan

+ M -+ % x^2 √ 1/n

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A5501CB 7620

Keys: medium-travel, squashy, light, no click

131 x 80 x 30mm, 130g

Donated by Decimo in 1981



178
Decimo: Super Vatman SS II

c. 1976, Japan

+ M -+ % x^2 √ 1/n

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD940C H5327M

Keys: medium-travel, light, squashy, soft click

131 x 80 x 30mm, 130g

Donated by Decimo in 1981



179
Decimo: Vatman V. Sc. I

c. 1977, Japan

+ M -+ √ 1/n π ϴ log exp

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD36109 6D55

Keys: medium-travel, squashy, wobbly, no click

131 x 80 x 30mm, 140g

Donated by Decimo in 1981



180
Decimo: Vatman V.Sc. II

c. 1977, Japan

+ M -+ √ x^2 1/n π ϴ log exp

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: M58626 001P 5719

Keys: medium-travel, well weighted, squashy, no click

131 x 80 x 30mm, 130g

Donated by Decimo in 1981



181
Decimo: Super Vatman V. Sc. I

1970s, Japan

+ M -+ x^2 √ 1/n π ϴ log exp

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD36290 5H21

Keys: concave, medium-travel, quite stiff, do not bounce back well, sticky

154 x 84 x 32mm, 160g

Donated by Decimo in 1981



182A
Hewlett Packard: HP-35

1975, USA

+ M fdp √ 1/n π ϴ log exp ab+

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, well weighted, somewhat heavy, loud click

158 x 91 x 41mm, 190g

£199 to £107

Donated by Paul Riddington (Peter Dann & Partners) in 1981

This was the first pocket calculator from HP, the first 'scientific' pocket calculator, and also the first using Reverse Polish Notation (RPN)



183
Kovac: LE-802PT

1970s, Japan

+ %

Power: 4 AA batteries or mains
Screen: LED

Keys: medium-travel, light, squashy, muffled click

140 x 74 x 30mm, 150g

Donated by Cliff Wedgebury in 1981



184
Kovac: LE-802P

c. 1973, Japan

+ %

Power: 4 AA batteries or mains
Screen: LED
Chip: Antex 3003 7406, 7349J SN75491N, 7345J SN75492N

Keys: long-travel, light, muffled click

140 x 74 x 30mm, 140g

£26.95 in June 1974

Donated by Ralph Woods in 1981 (he had purchased it for £26.95 in 1974)



185
Casio: Micro-mini

c. 1976, Japan

+

Power: button battery
Screen: LCD
Chip: NEC D870G R6X526

Keys: medium-travel, light, muffled click

89 x 65 x 18mm (in case), 30g

About $60 in 1976

Donated by Tim Timbers in 1981



186
Casio: Memory A-1 (H-814)

c. 1977, Japan

+ M -+ % √

Power: AA battery or mains
Screen: fluorescent
Chip: HD 36183 7G 23

117 x 74 x 19mm, 80g

Donated by H. D. Chilvers in 1981



187
Rockwell International: Scientific Slide Rule 63R

c. 1975, Mexico

+ M -+ √ 1/n π θ log exp

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: A480 2CA 7604

Keys: short-travel, heavy, rock forwards, metallic click

156 x 84 x 24mm, 220g

$99.95 in March 1975

Donated by Julia E. King (Department of Metallurgy, Cambridge)

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



188A
Texas Instruments: TI-20

c. 1979, Italy

+ M -+ √ x² 1/n π θ log exp

Power: 2 button batteries
Screen: LCD

Keys: short-travel, heavy, rock backwards, bright click

139 x 74 x 10mm, 70g

$33 in 1979

Donated by Texas Instruments in 1981



190
Texas Instruments: TI-33

c. 1978, Italy

+ M -+ x² √ 1/n π θ exp log

Power: 9v battery
Screen: LED
Chip: TML 0984NL MT 7914 Singapore

Keys: short-travel, heavy, loud click

147 x 77 x 35mm, 100g

Donated by Texas Instruments in 1981



191A
Texas Instruments: TI-35

c. 1980, Italy

+ M cm -+ % x² √ 1/n π θ log exp σ²

Power: 2 button batteries
Screen: LCD

Keys: short-travel, slightly wobbly, heavy, some keys on right hand side stick

134 x 74 x 10mm, 70g

£16.95

Donated by Texas Instruments in 1981



192A
Texas Instruments: TI-42 MBA

c. 1978, Italy

\+ M -+ % x^2 √ 1/n log exp σ^2 £ xy

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, heavy, bright click

146 x 77 x 36mm, 110g

$79.95 in 1978, to $60 in 1981

Donated by Texas Instruments in 1981



193A
Texas Instruments: TI-44

c. 1979, Italy

\+ cm -+ % x^2 √ 1/n log exp σ^2 £

Power: 2 button batteries
Screen: LCD

Keys: short-travel, slightly wobbly, heavy, bright click

134 x 74 x 10mm, 80g

About £39.95

Donated by Texas Instruments in 1981



194
Texas Instruments: TI-45

c. 1978, Italy

\+ M -+ % x^2 √ 1/n π ⊖ log exp

Power: 9v battery
Screen: fluorescent

Keys: short-travel, wobbly, heavy, loud click

146 x 77 x 35mm, 120g

£22.95

Donated by Texas Instruments in 1981



195
Texas Instruments: SR-52

c. 1975, Netherlands

\+ M fdp -+ x^2 √ 1/n π ⊖ log exp pg

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, somewhat wobbly, heavy, bright click

163 x 78 x 44mm, 250g

$395 in 1975

Donated by Texas Instruments in 1981

Panel on rear gives some operating examples, and slot below screen allows program cards to be inserted



196
Texas Instruments: TI-53

c. 1978, Italy

\+ cm -+ % x^2 √ 1/n π ⊖ log exp pg

Power: 2 button batteries
Screen: LCD

Keys: short-travel, heavy, loud click

134 x 74 x 10mm, 70g

Donated by Texas Instruments in 1981



197A
Texas Instruments: SR-56

c. 1976, USA

\+ M fdp -+ x^2 √ 1/n π ⊖ log exp pg σ^2

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, slightly wobbly, well weighted, bright click

147 x 77 x 33mm, 150g

$195 in 1976

Donated by Texas Instruments in 1983



198
Texas Instruments: TI Programmable 58

c. 1977, Netherlands

\+ M fdp -+ x^2 √ 1/n π ⊖ log exp pg σ^2

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, heavy, somewhat wobbly, loud click

163 x 77 x 36mm, 170g

£249.95 to £64.95

Donated by Texas Instruments in 1981

A highly specialised version of the TI-58 was produced by fitting it with a 'Harrier' module, to enable this model of calculator to be used by pilots of Harrier aircraft



199A
Texas Instruments: TI Programmable 58 C

c. 1979, USA

\+ cm fdp -+ x^2 √ 1/n π ⊖ log exp pg σ^2

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, wobbly, heavy, hollow click

163 x 81 x 38mm, 170g

£73.95; $90 in 1979

Donated by Texas Instruments in 1981

This model was created in 1977 but not introduced until 1979



200A

Texas Instruments: TI-1015

c. 1980, Taiwan

+ M -+ % √

Power: 2 AA batteries
Screen: LCD
Chip: Toshiba T3870 0.G

Keys: medium-travel, well weighted, soft click

140 x 74 x 18mm, 70g

£7.95

Donated by Texas Instruments in 1981

In 1982, Texas Instruments discovered the lower manufacturing labour costs of Taiwan, compared with the U.S. or Europe



200B

Texas Instruments: TI-1015

c. 1980, Taiwan

+ M -+ % √

Power: 2 AA batteries
Screen: LCD

Keys: medium-travel, wobbly, squashy, muffled click

140 x 74 x 18mm, 70g

£7.95

Donated by Texas Instruments in 1983



201

Texas Instruments: TI-1030

1978, Italy

+ M % √

Power: 2 button batteries
Screen: LCD
Chip: TPO311-4N MA 7849 Singapore

Keys: short-travel, heavy, rock backwards, bright click

116 x 65 x 10mm, 40g

Donated by Texas Instruments in 1981



202

Texas Instruments: TI-1035

c. 1979, Japan

+ M -+ % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T37095.O.F

Keys: short-travel, squashy, heavy, rock forwards, muffled thud

110 x 64 x 8mm, 40g

£7.95

Donated by Texas Instruments in 1981



203A

Texas Instruments: TI-1070

c. 1978, Italy

+ M -+ x^2 √ 1/n π

Power: 2 button batteries
Screen: LCD
Chip: TP0314-4NM7910 Singapore

Keys: short-travel, somewha heavy, rock backwards, bright click

116 x 66 x 9mm, 50g

Donated by Brian Pane (Heffers, Cambridge) in 1981



204

Texas Instruments: TI-2550 III

c. 1976, Italy

+ M -+ % x^2 √ 1/n

Power: removable rechargeable battery pack
Screen: fluorescent

Keys: short-travel, somewhat heavy, bright click

147 x 78 x 31mm, 120g

£24.95

Donated by Texas Instruments in 1981



205

Texas Instruments: DataCard

c. 1979, USA

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: concave, short-travel, light, no click

95 x 57 x 6mm, 30g

$19.95 in 1979

Donated by Texas Instruments in 1981



206

Texas Instruments: DataChron

c. 1977, Japan

+ M % -+ √

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, somewhat squashy, light, muffled click

134 x 68 x 10mm, 80g

Donated by Texas Instruments in 1981



6153

Security cradles and cases for HP pocket electronic calculators

1970s

In the early 1970s, calculators were expensive. So, like laptops today, you could buy security cables and cradles to make sure that no one took the calculator from your desk while you were away from it. If you preferred to carry your calculator around, many were sold with cases to protect them from scratches and scuffs in a pocket or briefcase, and Hookham included a selection of these in his collection.





207
Texas Instruments: Little Professor

c. 1978, Italy

+

Power: 9v battery
Screen: LED
Chip: TMC 1993NL NCW 7945 Singapore

Keys: short-travel, heavy, rock forwards, soft click

127 x 88 x 29mm, 100g

Donated by Texas Instruments in 1981



208
Texas Instruments: Letter Logic

c. 1980, Italy

Power: 9v battery
Screen: fluorescent

158 x 86 x 29mm, 140g

£19.95

Donated by Texas Instruments in 1981

This language learning aid plays word games but does not function as a calculator



209
Texas Instruments: Speak & Spell

c. 1980, Netherlands

Power: 4 C batteries or mains
Screen: fluorescent

Keys: protruding letter keys rather than the flat keys of similar models

253 x 175 x 36mm, 480g

£45.95

Donated by Texas Instruments in 1981

This spelling learning aid plays word games but does not function as a calculator



210
Litton Industries: Monroe 20

c. 1973, USA

+

Power: sealed rechargeable battery pack
Screen: LED

Keys: long-travel, light, high-pitched click

150 x 91 x 41mm, 210g

£89

Donated by Mr Bennett (Eastern Electrical) in 1981



211
Bowmar/Ali Inc: MX80 (90152)

c. 1973, USA

+ %

Power: sealed rechargeable battery pack
Screen: LED
Chip: TMS 0127 NC 7319

Keys: concave, short-travel, well weighted, bright click

133 x 77 x 38mm, 240g

$119.95 in 1973; £60 in August 1974

Donated by Regal Temp-Tone Ltd (Comberton) In 1981

Bowmar could not get enough chips from their suppliers, nor keep pace with the market's lower costs and new features, and were bankrupt by 1976



212
National Semiconductor Corporation: Novus Statistician 6030

c. 1975, Malaysia

+ M % √ σ²

Power: 9v battery or mains
Screen: LED
Chip: NS 511 MM5763N

Keys: short-travel, heavy, resistant to touch, quiet thud

151 x 75 x 32mm, 120g

About £16.50

Donated by Regal Temp-Tone Ltd (Comberton) In 1981

Novus was a brand name used by National Semiconductor to help promote their products.



213A
Sumlock Anita Ltd: Anita 811

1972, UK

+ M %

Power: 3 AA batteries or mains
Screen: LED
Chip: 15330PC 7334

Keys: medium-travel, light, springy

119 x 70 x 24mm, 130g

£75

Donated by Mike Lear (Norwich Union) in 1981

This was the first Anita hand-held calculator put on sale



214A
Sharp: EL-8140

c. 1978, Japan

+ M %

Power: 2 button batteries
Screen: LCD
Chip: LI 3030 806 Sharp

Keys: touch sensitive keys

85 x 53 x 4mm, 30g

Donated by Mr Pearson (Gestetner Ltd) in 1981

A key with a musical note symbol activates sounds when keys are pressed



215
Sharp: Elsi Mate EL-210

c. 1980, Korea

+ M % √

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, wobbly, squishy, light, faint click

127 x 77 x 21mm, 110g

Donated by Mr Miller (Ridgeons, Cambridge) in 1981



216A
Commodore: X-24

c. 1975, Japan

+ M % √

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: short-travel, squashy, somewhat heavy, muffled click

135 x 74 x 14mm, 70g

Donated by Mr Jackson in 1981

Rear casing of calculator has been exchanged with that of an identical model



217
Commodore: 798A

Late 1970s, Hong Kong

+ M % √

Power: 9v battery or mains
Screen: LED
Chip: 3D32C ML980 CSRP 7644

Keys: short-travel, somewhat heavy, soft click

157 x 68 x 24mm, 80g

Donated by Mr Phipps (at cost) in 1981



218
Hewlett Packard: HP-21

c. 1975, Singapore

+ M √ 1/n π ⊖ log exp ab+

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, well weighted, rock backwards, soft click

129 x 66 x 30mm, 100g

$125 in 1975

Donated by Stephen Watson in 1981

A yellow 'f' key and blue 'g' key determine which of each key's three functions is being used, a way of marking keys that was unique to HP



219
Binatone: Memory

c. 1978, Hong Kong

+ M -+ %

Power: 9v battery or mains
Screen: LED
Chip: TI ZA0571 KESD 7602

Keys: short-travel, heavy, quiet click

132 x 70 x 24mm, 70g

Donated by Tony Grey in 1981



220
Santron Electronics Co Ltd: Santronic 20SR

c. 1975

+ M -+ % x² √ 1/n

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A4641PA 7526

Keys: medium-travel, well weighted, squashy, muffled thud

133 x 73 x 30mm, 130g

Donated by Ray Kelley (Fitzwilliam College, Cambridge) in 1981



221
Academy

c. 1978, Hong Kong

+ M % -+

Power: 9v battery or mains
Screen: LED
Chip: TI TMS0972NL KBTP 7814

Keys: short-travel, well-weighted, bright click

133 x 69 x 23mm, 60g

Donated by King Alfred Sports in 1981

This model is almost identical in appearance to a number of others - many based on Texas Instruments chips were made in 1977-9



222
Hitachi: KK 221B

c. 1972, Japan

+ M %

Power: removable rechargeable battery pack
Screen: fluorescent
Chip: 3G3HD3576, HD3233P 3G3-3G4 (x2), IC 6294 736, HD3253P 3F5, IC 6297 736, IC 5406 737

Keys: long-travel, squashy, well-weighted, muffled sound on depression, sticky at bottom before snapping back up

167 x 112 x 37mm, 440g

Donated by Tim Timbers in 1981



223

Sanyo: L.B. Card CX 1251

Late 1970s-early 1980s, Japan

+ M % √

Power: button battery
Screen: LCD

Keys: short-travel, wobbly, squashy and light, no click

94 x 56 x 4mm, 30g

Donated by Paul Street (Department Estate Management) in 1981



224

Casio: Mini-Card LC-781

Late 1970s-early 1980s, Japan

+ M % √

Power: 2 button batteries
Screen: LCD
Chip: NEC D1870G E0601K

Keys: short-travel, squashy, light, no click

54 x 83 x 5mm, 30g

Donated by Brian Pane (Heffers, Cambridge) in 1981



225

Sinclair: Executive Memory

1974, UK

+ M

Power: 4 button batteries
Screen: LED

Keys: tiny, short-travel, light, no click

139 x 56 x 9mm, 50g

£24.95

Donated by Norman Tobin in 1981

This model used button cells, making it very thin compared to others of the time, but their low power meant that the circuits had to be specially designed



226

Texas Instruments: TI-1000

c. 1977, Italy

+ -+ %

Power: 9v battery or mains
Screen: LED
Chip: TMC 1991NL ASP 7731

Keys: medium-travel, heavy, rock forwards, bright click

138 x 69 x 33mm, 70g

£6.95

Donated by Jack Smalley in 1981



227A

Hewlett Packard: HP-65

1974, USA

+ M fdp 1/n √ 1/n π Θ log exp pg ab+

Power: removable rechargeable battery pack
Screen: LED

161 x 92 x 55mm (in case), 340g

£455 in January 1974, to £300 in February 1977

Donated by David Shoesmith (Cambridge University Examination Syndicate) in 1981

On the rear of this model, the first programmable pocket calculator, is a pack of program cards and a quick reference guide



228

Casio: LC-821

c. 1978, Japan

+ M % √

Power: 3 button batteries
Screen: LCD

Keys: short-travel, light, muffled click

109 x 61 x 7mm, 40g

Donated by Graham Solway in 1981



229

Litton for Imperial Typewriter Company Ltd: Royal Digital V

c. 1972, Japan

+

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: 7312 251F

Keys: long-travel, light, springy, no click

149 x 89 x 36mm, 180g

$19.95 in 1979

Donated by Jeffery Lewins in 1981



230

Litton for Imperial Typewriter Company Ltd: Royal Five GT

1970s, Japan

+ M %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: LC1552B 7438

Keys: medium-travel, light, springy, faint click

154 x 91 x 40mm, 180g

About £40 in c. 1975

Donated by Nicholas Cook in 1981

SPOT THE DIFFERENCE?



086

House of Fraser Model 8-F

1975

By the middle of the 1970s, there were a huge number of companies making and selling calculators. All was not quite what it seemed, though, as some companies sold on rebadged versions of other companies' calculators.

Rockwell were one of the early chip manufacturers, who bought the calculator company Unicom. As well as supplying chips to other calculator companies, Rockwell calculators were rebadged for a number of companies, including this one for House of Fraser department stores.



125A

Rockwell Automatic Percent 8-R

c. 1975



231A
Commodore: 776M

c. 1975, UK

+ M %

Power: 9v battery or mains
Screen: LED
Chip: GRBP-67 7549

Keys: medium-travel, slightly wobbly, squashy, light

137 x 60 x 23mm, 70g

Donated by Mr Bennett (Eastern Electrical) in 1981



232
Sharp: Elsi Mate EL-8131

1977-9, Japan

+ M % √

Power: 2 AA batteries or mains,
Screen: fluorescent
Chip: SC36442 7M23

Keys: short-travel, light, quite squashy, no click

130 x 80 x 19mm, 130g

Donated by Claude Wetherall in 1981



233
Dixons: Prinztronic Micro LC70 Auto

Late 1970s-early 1980s, Taiwan

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light, bright click

55 x 94 x 7mm, 30g

Donated by Tony Cooke (Catling, Brady and Bliss) in 1981

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



234
Brinlock: Abacus

c. 1981, UK

+ M -+ % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T37095.O.F

Keys: short-travel, squishy and light

113 x 59 x 19mm, 70g

Purchased for £3.25 in 1981



235
Binatone: President

c. 1975

+ M -+ % √

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: Sharp LI2003 5HI 020

Keys: concave, short-travel, heavy, soft click

137 x 84 x 20mm, 120g

Donated by Bernard Baldrey (Electrical Installations) in 1982



236A
Kovac

Early 1970s, Japan

+ fdp -+

Power: 2 C batteries or mains
Screen: fluorescent

Keys: long-travel, well-weighted, somwhat squashy, plastic-sounding thud on depression then bright click on release

212 x 136 x 60mm, 630g

Donated by Bernard Baldrey (Electrical Installations) in 1982



237A
Casio: AQ-1000

c. 1978, Japan

+ cm % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3694 8-E

117 x 62 x 7mm, 50g

Donated by Nick Barrington in 1982

This was an early clock-style model, with the low power consumption of the display allowing the time to be continuously displayed whilst in the watch mode



238
Casio: LC-316

c. 1985, Japan

+ M % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T6081S O.H

Keys: short-travel, somewhat wobbly, light, squashy, soft thud

110 x 65 x 8mm, 50g

£5.95

Donated by Diana Taylor in 1982



239

Sinclair: Enterprise

c. 1977, UK

+ M % √

Power: 9v battery or mains
Screen: LED
Chip: 7732 C689D

Keys: short-travel, heavy, springy, bright click

137 x 66 x 24mm, 60g

Donated by Diana Taylor in 1982

The entire front casing must be removed to get to battery compartment, by pressing in plastic clips at the top and the bottom



240

Casio: UC-360

c. 1982, Japan

+ cm %

Power: 2 button batteries
Screen: LCD
Chip: IA 21 HD 43194

Keys: keys also play musical notes

61 x 90 x 6mm, 40g

£17.95 in January 1982

Purchased for £17.95 in 1982



241

Texas Instruments: Spelling B

c. 1978, El Salvador

Power: 9v battery
Screen: fluorescent
Chip: TMCO272NL NCS 8001 P Singapore

167 x 126 x 40mm, 240g

About £19.95

Donated by Texas Instruments in 1982

This spelling learning aid plays word games but does not function as a calculator



242

Texas Instruments: Pocket language translator

c. 1980, USA

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: TMC028 ONL CD2801 D8014

211 x 102 x 40mm, 360g

£99.95

Donated by Texas Instruments in 1982

This language translator has no mathematical functions



243

Texas Instruments: TI-5112

c. 1980, Japan

+ M -+ fdp √

Power: 2 AA batteries
Screen: LCD
Chip: Toshiba T6736S O.J

Keys: medium-travel, light, squashy, soft click

181 x 127 x 40mm, 270g

Donated by Texas Instruments in 1982



244

Texas Instruments: TI-50

c. 1978, Italy

+ cm -+ % x^2 √ 1/n π θ log exp σ^2

Power: 2 button batteries
Screen: LCD

Keys: short-travel, quite wobbly, somewhat heavy, prominent click

134 x 74 x 10mm, 80g

£23.95

Donated by Texas Instruments in 1982



245

Texas Instruments: TI Money Manager

c. 1977, USA

+ M -+ % x^2 √ 1/n log exp £

Power: 9v battery
Screen: LED

Keys: short-travel, heavy, dull click

147 x 77 x 34mm, 100g

Donated by Texas Instruments in 1982



246

National Semiconductor Corporation: Novus 4510 Mathematician

c. 1975, Malaysia

+ M x^2 √ 1/n π θ log exp ab+

Power: 9v battery or mains
Screen: LED
Chip: NS/601 MM5760N, NS/603 DS8864N

Keys: medium-travel, light and squashy, quiet click

151 x 75 x 31mm, 120g

$60 in 1975

Donated by Frank Cooper (Corpus Christi College, Cambridge) in 1982

Novus was a brand name used by National Semiconductor to help promote their products



247A

Casio: fx-110

c. 1977, Japan

+ M x² √ 1/n 1/n π ⊖ log exp σ²

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: long-travel, somewhat heavy, no click

151 x 80 x 22mm, 150g

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



248

Hewlett Packard: 33E

c. 1978, Singapore

+ M fdp % x² √ 1/n π ⊖ log exp pg σ² ab+

Power: removable rechargeable battery pack
Screen: LED

Keys: medium-travel, light, rock backwards, hollow deep click

142 x 72 x 30mm, 120g

About £70 in May 1978

Donated by David Maul (Corpus Christi College, Cambridge) in 1982

A yellow 'f' key and blue 'g' key determine which of each key's three functions is being used, a way of marking keys that was unique to HP



249

Texas Instruments: Speak & Spell

c. 1980, Italy

Power: 4 C batteries or mains
Screen: fluorescent

Keys: flat letter keys

253 x 177 x 33mm, 440g

£45.95

Donated by Texas Instruments in 1982

This spelling learning aid plays word games but does not function as a calculator



250

Hewlett Packard: HP-29C

c. 1977, Singapore

+ M fdp % x² √ 1/n π ⊖ log exp pg σ² ab+

Power: removable rechargeable battery pack
Screen: LED

Keys: medium-travel, light, rock backwards, hollow deep click

128 x 65 x 29mm, 110g

About £160 in July 1977, to £99 in September 1979; $195 in the U.S. in 1977

Donated by Peter Uloth in 1982

This model orignally came in a fur-lined, leather-effect zipper pouch



251

Sharp: EL-811A

c. 1971, Japan

+ M -+ %

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: 10580PA 7221, 10631PA 7221

Keys: long-travel, squashy, light click

174 x 106 x 44mm, 400g

Donated by Mr Carter (Brignalls builders) in 1982



252

Sharp: Elsi Mate EL-8110

c. 1975, Japan

+ M -+ % √

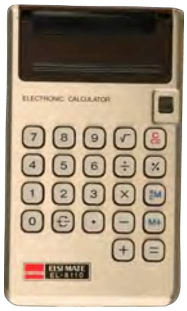
Power: 2 button batteries or mains
Screen: LCD

Keys: concave, short-travel, somewhat wobbly, well weighted, squashy, no click

129 x 76 x 11mm, 90g

$40-50 in 1977

The pop-up hood was introduced by Sharp in late 1973 to better render the new, light-reflecting (rather than light-emitting) display type



252A

Sharp: Elsi Mate EL-8110

c. 1975, Japan

+ M -+ % √

Power: 2 button batteries or mains
Screen: LCD

Keys: short-travel, squashy, heavy, no click

129 x 76 x 11mm, 90g

Donated by Captain Kisray in 1986



253

Sharp: Elsimate EL-8151

c. 1979, Korea

+ %

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: medium-travel, springy, light click

180 x 100 x 45mm, 510g

Donated by Mr Carter (Brignalls builders) in 1982

There is a printer above the display: the plastic cover slides off to reveal a compartment into which a print roll can be inserted



254

Sperry Rand Corporation: Remington 661.D

1972–3, Japan

+ fdp

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: 3JI HD32154P, NEC X34029UPD129C

Keys: long-travel, light and squishy

154 x 80 x 40mm, 220g

Donated by Mr D'eath (Altro Flooring) in 1982



255

Hanimex: ESR Master

c. 1976, Hong Kong

+ M -+ -+ √ 1/n π ⊖ log exp

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A4802PA 7522

Keys: concave, short-travel, somewhat heavy, prominent click

135 x 83 x 25mm, 140g

Purchased with two others for a total of £5 from Campkins (Cambridge) in 1982



256

Kingspoint Corporation: Micro Executive 8414

c. 1973, Japan

+ fdp %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: TI TMS0128NCD C7349

Keys: medium-travel, squashy, light, no click

153 x 85 x 32mm, 240g

Purchased with two others for a total of £5 from Campkins (Cambridge) in 1982



257

Canon: Canola L812

c. 1975, Japan

+ M -+ % fdp

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD 36264 6J13

Keys: concave, long-travel, light and squashy, no click

157 x 130 x 44mm, 270g

Donated by Geoff Rowlinson in 1982



258

Casio: 101-MR

c. 1974, Japan

+ M fdp % √

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD32612P 4G42, HD3596 4H34

Keys: long-travel, squashy and light, hollow click

154 x 116 x 36mm, 280g

Donated by H. D. Chilvers in 1982



259A

Dixons: Prinztronic Credit Card

Late 1970s–early 1980s, Taiwan

+ M % √

Power: 2 button batteries
Screen: LCD
Chip: NEC D1832G M1570K

Keys: short-travel, springy, somewhat heavy

65 x 95 x 10mm, 40g

Donated by Dixons in 1982

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



260A

Dixons: Prinztronic Executive Card

Late 1970s–early 1980s, Taiwan

+ M %

Power: 2 button batteries
Screen: LCD

Keys: hort-travel, squashy, fairly heavy

55 x 91 x 6mm, 30g

Donated by Dixons in 1982



261

Dixons: Prinztronic Metric Converter

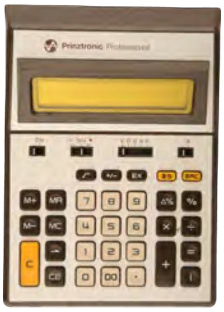
Late 1970s–early 1980s, Taiwan

+ cm % -+ √

Power: 2 button batteries
Screen: LCD

105 x 67 x 11mm, 70g

Donated by Dixons in 1982



262

Dixons: Prinztronic Professional

Late 1970s–early 1980s, Taiwan

+ M fdp -+ % √

Power: 2 AA batteries
Screen: LCD

Keys: concave, medium-travel, well weighted, low thud

190 x 135 x 37mm, 230g

Donated by Dixons in 1982

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



263A

Dixons: Prinztronic Programmable 40

Late 1970s–early 1980s, Taiwan

+ cm fdp -+ √ x² 1/n π θ log exp pg σ²

Power: 2 button batteries
Screen: LCD
Chip: Sharp LI3301A

132 x 72 x 8mm, 70g

Donated by Dixons in 1982



264A

Dixons: Prinztronic SQ 60

Late 1970s–early 1980s, Taiwan

+ cm % √

Power: button battery
Screen: LCD
Chip: NEC D1031G EDY0ZK-047

Keys: short-travel, heavy, squashy, no click

65 x 104 x 13mm, 40g

Donated by Dixons in 1982



265

Sharp: Elsi Mate EL-8146

c. 1979, Japan

+ M % √

Power: 2 AAA batteries
Screen: LCD

Keys: short-travel, light, squashy, no click

122 x 75 x 14mm, 110g

Donated by Bernard Baldrey (Electrical Installations) in 1982



266

Dixons: Prinztronic XL 103

Late 1970s–early 1980s, Taiwan

+ M fdp -+ √ %

Power: 2 button batteries
Screen: LCD

Keys: long-travel, well weighted, soft and squasy, no click

171 x 146 x 40mm, 240g

Donated by Dixons in 1982



267

Dixons: Prinztronic BSC 750

c. 1980, Taiwan

+ M -+ √ x² 1/n π θ log exp σ²

Power: button battery
Screen: LCD
Chip: NEC D1854G X0X36K

Keys: medium-travel, quite light and squashy, soft click

129 x 69 x 10mm, 60g

Donated by Dixons in 1982



268A

Dixons: Prinztronic Micro PD1000

Late 1970s–early 1980s, Japan

+ cm -+ % √

Power: 4 AA batteries or mains
Screen: LCD

Keys: medium-travel, light, somewhat squashy, soft but bright click

145 x 72 x 28mm, 170g

Donated by Dixons in 1982



269

Dixons: Prinztronic MSC 1002

Late 1970s–early 1980s, Taiwan

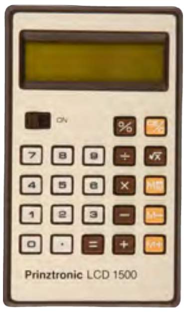
+ M -+ x² √ 1/n π θ log exp σ²

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, quite light, low metallick click

129 x 70 x 9mm, 60g

Donated by Dixons in 1982



270
Dixons: Prinztronic LCD 1500

Late 1970s–early 1980s, Taiwan

+ M % √

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3603 9-E

Keys: medium-travel, bouncy, light, muffled click

98 x 58 x 8mm, 40g

Donated by Dixons in 1982

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



271
Dixons: Prinztronic MSC 2000

Late 1970s–early 1980s, Taiwan

+ cm fdp -+ % x² √ 1/n π ⊖ log exp σ² ♫

Power: button battery
Screen: LCD

Keys: medium travel, quite wobbly, light, muffled click

129 x 69 x 9mm, 60g

Donated by Dixons in 1982



272A
Dixons: Prinztronic LCD 5000

Late 1970s–early 1980s, Taiwan

+ M % √

Power: solar
Screen: LCD

Keys: medium-travel, wobbly, light, soft click

105 x 59 x 7mm, 40g

Donated by Dixons in 1982



273
Sharp: EL-5810

Late 1970s–early 1980s, Japan

+ M -+ % √ x² 1/n π ⊖ log exp σ² ♫

Power: 2 button batteries
Screen: LCD

Keys: touch sensitive keys

84 x 52 x 3mm, 30g

Donated by Rosanne Holt in 1982

A key with a musical note symbol activates sounds when keys are pressed



274
Pye: P-630

1974, Malaysia

+

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: 7502 C-566-1

Keys: medium-travel, light and springy, muffled click

159 x 93 x 39mm, 260g

Donated by Ron Storey (Corpus Christi College, Cambridge) in 1982



275
Unisonic: 1211

c. 1975, Japan

+ M -+ %

Power: 4 AA batteries or mains,
Screen: LED
Chip: 15350 A1150PB 7401

Keys: short-travel, quite wobbly, squashy, soft click

154 x 91 x 35mm, 170g

Donated by Leno Pedol in 1982



276
Casio: fx-510

c. 1980, Japan

+ M fdp -+ x² √ 1/n π ⊖ log exp σ²

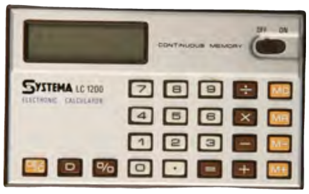
Power: 2 button batteries
Screen: LCD

Keys: medium-travel, squashy and light, dull click

132 x 71 x 9mm, 70g

£19.95

Donated by Alan Monro in 1983



277
Systema: LC 1200

Late 1970s–early 1980s, Taiwan

+ cm %

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3567-9-F

Keys: short-travel, squashy, heavy, no click

54 x 90 x 6mm, 30g

Donated by Mr Cullpepper (Heffers Drawing Office Shop) in 1982



278
Plustronics Ltd: Plustron 108

1974, Singapore

+

Power: 4 AA batteries or mains
Screen: LED
Chip: CZ? 550 7344, ITT 7333 7105N

Keys: long-travel, light, no click

166 x 82 x 38mm, 180g

Donated by J. V. Smith (VAT Office, Cambridge) in 1982



279
Bowmar Canada Ltd: 90515

c. 1973, Canada

+ %

Power: sealed rechargeable battery pack,
Screen: LED
Chip: 15332PC 7319, TI 7311, TI 7315, TI SN75493N, TI SN75494N

Keys: short-travel, light, quite squashy, no click

148 x 77 x 33mm, 170g

Donated by Richard Starte in 1982

Bowmar could not get enough chips from their suppliers, nor keep pace with the market's lower costs and new features, and were bankrupt by 1976



280
Sharp: Elsi Mate EL-203

c. 1977, Japan

+ M % √

Power: 9v battery
Screen: LCD
Chip: SC 37003 7H43

Keys: medium-travel, slightly wobbly, squashy, light, soft click

116 x 75 x 22mm, 110g

Donated by Cyril Brady in 1982



281
Texas Instruments: Math Marvel

c. 1980, USA

+

Power: 9v battery
Screen: fluorescent

Keys: short-travel, heavy, rock backwards, bright click

157 x 86 x 29mm, 130g

$30 in 1980

Donated by Dixons in c. 1982.

This model is an educational toy, teaching the main arithmetical functions through games



282
Commodore: SR4912

c. 1978, Hong Kong

+ M -+ % √ x² 1/n π log exp

Power: 9v battery or mains
Screen: LED

Keys: short-travel, light, dull click

153 x 83 x 41mm, 120g

Purchased for £5 in 1982



283
Top Crest: Memory

c. 1977, Hong Kong

+ M -+ % √

Power: 9v battery or mains
Screen: LED

133 x 70 x 24mm, 70g

Donated by Mr Platt in 1982



284
Sinclair: Oxford 100

c. 1975, UK

+

Power: 9v battery or mains
Screen: LED
Chip: GIMT 4A CZL 550

Keys: short-travel, wobbly, heavy, hollow click

156 x 74 x 31mm, 110g

£12.95

Donated by Ian Spencer (Heffers, Cambridge) in 1982



285
Silver-Reed (or Silver Seiko): 81

c. 1979

+ M % √

Power: AA battery or mains, Screen: fluorescent

Keys: concave, medium-travel, wobbly, light and squashy, no click

121 x 75 x 19mm, 70g

Donated by Ian Spencer (Heffers, Cambridge) in 1981



286
The General Corporation: Teknika EDC-8105

Late 1970s-early 1980s, Japan

+ M -+ % x^2 √ 1/n

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, light, soft click

110 x 61 x 8mm, 50g

Donated by David Craig in 1982



287
Decimo: Vatman Mini II

c. 1978

+ M % √

Power: AA battery or mains
Screen: fluorescent

Keys: medium-travel, squashy, slightly wobbly, soft click

116 x 74 x 18mm, 80g

Donated in 1983

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



288
Olympia: LCD 220

Late 1970s-early 1980s

+ M fdp -+ % √ x^2 1/n π exp

Power: 2 button batteries
Screen: LCD
Chip: LI 3009M 910 Sharp

Keys: almost flush and short-travel, light, muffled click

128 x 66 x 9mm, 70g

Donated by Launa (Joshua Taylor) in 1983



289
Hanimex: BC 900

1976

+ %

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: short-travel, bouncy, loud click

136 x 84 x 25mm, 160g

Donated by Effie Craig in 1983



290
Casio: CQ-2

1977, Japan

+

Power: 2 button batteries or 1AA battery or mains
Screen: fluorescent

Keys: medium-travel, squashy, light, no click

71 x 145 x 38mm, 140g

Introduced as a clock at about £75 without success, then as a calculator at £29

Donated by John Smith (Coulson Printers) in 1983

This was the first product to combine a quartz clock with a calculator - other examples have a 'TIME IS MONEY' sticker along the top



291
Ibico: 045

1979

+ M % √

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: TMS 1045NL MT 7914

Keys: concave, short-travel, squashy, heavy, faint click

126 x 76 x 19mm, 90g

Donated by Stephen Pink (Rutherford Rotary Club) in 1983



292
Commodore: LC43SR

Late 1970s-early 1980s, Japan

+ M -+ √ x^2 1/n π ⊖ log exp σ^2

Power: 3 button batteries
Screen: LCD

Keys: short-travel, light, no click

135 x 70 x 8mm, 70g

Donated by Richard Hackett in 1983



293
Casio: Personal-I

c. 1976, Japan

+ % √

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, somewhat heavy, squashy, no click

124 x 75 x 23mm, 100g

Donated by Jane Betts in 1983

ACCOUNTING MADE EASIER





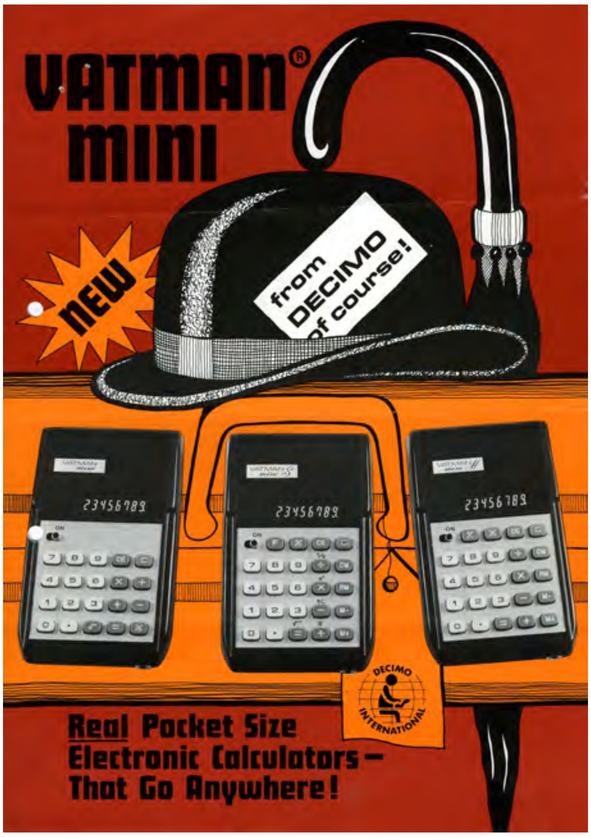
076A

Sinclair Oxford 200 and advert (above)

c. 1974

After the UK joined the European Economic Community, a new Value Added Tax (or VAT) replaced the purchase tax. This was levied at different rates on different types of goods, and companies including Sinclair took advantage of this to advertise their calculators as solutions to the challenge of working out the right amount of VAT to charge.







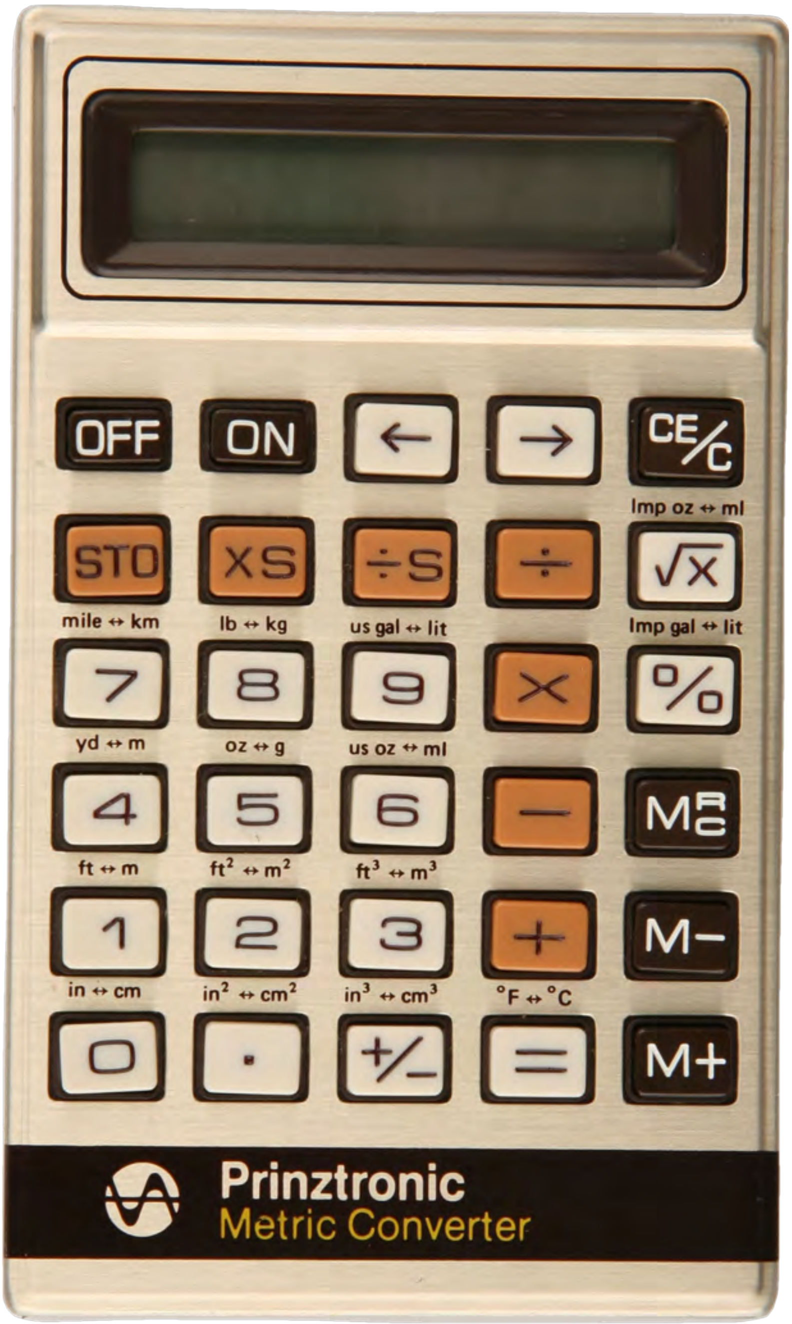
104A1

Decimo Vatman (above) and Vatman mini adverts (right)

1974

Seeing an opportunity to capitalise on confusion around the new VAT, calculator company Decimo introduced at least 32 different calculators in the Vatman range from 1973 to 1978.

As they were characterised by some at the time, the tax inspectors were the bad guys, ruthlessly targeting small business owners and shopkeepers, then Vatman calculators were promoted as superheroes who could make the calculations simple.



261

Prinztronic Metric Converter

Late 1970s/early 1980s.

In the UK in the 1970s, there were concerted efforts by the Government to encourage people to use metric rather than imperial quantities, after the metric system had been adopted in 1965.

Calculators like this one were specially designed to help with these conversions.



294

Commodore: SR-4190R

1976, UK

+ M -+ % x^2 √ 1/n π ⊖ log exp $σ^2$ ○

Power: sealed rechargeable battery pack
Screen: LED
Chip: G-04 7632

Keys: concave, medium-travel, squashy, light, rattle-like click

152 x 79 x 35mm, 150g

£37.45

Donated by Andrew Tristram in 1983



295

Compex: LC-1200

Late 1970s-early 1980s, Taiwan

+ M % √ π

Power: 2 button batteries
Screen: LCD

Keys: slightly concave, short-travel, wobbly, heavy, muffled thud

119 x 70 x 12mm, 80g

Donated by Nigel Neville in 1983



296

Rockwell International: 20R

c. 1974, UK

+ M %

Power: 9v battery or mains
Screen: LED
Chip: A5300PA 7517

Keys: tall and dome-shaped, short-travel, well weighted, soft click

155 x 77 x 22mm, 120g

$50 in 1974, to $39.88 in March 1975

Donated by Clive Dalton (Cambridge Institute, Little Eversden) in 1983

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



297

Rockwell International: 24 RD-II

c. 1976, Japan

+ M -+ % √

Power: 3 AA batteries or mains
Screen: fluorescent
Chip: A5901CA 7633

Keys: medium-travel, heavy, no click

155 x 76 x 23mm, 130g

£10.80

Donated by Ron Broad in 1983



298

Boots: 230

Late 1970s-early 1980s, Japan

+ M % √

Power: 2 AA batteries
Screen: LCD
Chip: Toshiba HD 34111A 9F13

Keys: long-travel, light, muffled click

136 x 74 x 19mm, 80g

Donated by Betty Shimel in 1983



299

Commodore: LC 63 SR

Late 1970s-early 1980s, Hong Kong

+ M -+ x^2 √ 1/n π ⊖ log exp $σ^2$

Power: 2 button batteries
Screen: LCD
Chip: Toshiba T3636 8-L

Keys: medium-travel, light, squashy, no click

135 x 70 x 9mm, 70g

Donated by John Watson in 1983



300

Computer Ancillaries Ltd: Calate

c. 1972, UK

+

Power: sealed rechargeable battery pack
Screen: LED
Chip: TI TMS 1802 NC 7137, 5N75492N 7211A (x2), 5N75491N 7210 (x2)

Keys: touch sensitive keys

141 x 79 x 46mm, 160g

Donated by Clive Dalton (Cambridge Institute, Little Eversden) in 1983



301

Sinclair: Oxford 30 (type 2)

1975, UK

+ M √ 1/n π ⊖ log

Power: 9v battery or mains
Screen: fluorescent
Chip: 7540 C-596

Keys: short-travel, well weighted, loud click

156 x 73 x 33mm, 130g

£29.95

Donated by Tony Cooke (Catling, Brady and Bliss) in 1983



302

Texas Instruments: TI-21

c. 1982, Taiwan

+ M -+ % x² √ 1/n π ϴ log exp

Power: 2 AA batteries
Screen: LCD

Keys: medium-travel, light, soft click

156 x 76 x 19mm, 90g

Donated by Texas Instruments in 1983



303

Texas Instruments: TI-1006

c. 1982, Japan

+ cm % √

Power: solar
Screen: LCD

Keys: medium-travel, squashy, light, muffled click

117 x 65 x 9mm, 50g

Donated by Texas Instruments in 1983



304

Texas Instruments: TI-1766

c. 1981, Japan

+ M -+ % √

Power: solar
Screen: LCD

Keys: medium-travel, light, bright but faint click

111 x 65 x 7mm, 40g

$19.95 in 1981

Donated by Texas Instruments in 1983

This was Texas Instruments' first solar powered LCD model, later than other companies like Sharp, who had released their EL-8026 Sunman in 1976



305

Commodore: F4902

c. 1978, Hong Kong

+ M -+ % x² √ 1/n log exp σ² £

Power: 9v battery or mains
Screen: LED
Chip: 1110 MPS 7561 004 0878

Keys: short-travel, light, soft click, keys quite sticky

153 x 81 x 40mm, 130g

Donated by Richard Gross in 1983 (he had purchased it in January 1980)



306

Casio: fx-81

c. 1980, Japan

+ M fdp -+ x² √ π ϴ log exp

Power: 2 AA batteries
Screen: LCD

Keys: long-travel, squishy and light, no click

149 x 76 x 17mm, 100g

£12.95

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



307

Casio: fx-120

c. 1978, Japan

+ M -+ % √ x² 1/n π ϴ log exp σ²

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, squashy and light, no click

162 x 84 x 24mm, 150g

£24.95

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



308A

Casio: fx-140

c. 1978, Japan

+ M -+ √ x² 1/n π ϴ log exp σ²

Power: 2 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, light, soft and squashy, muffled thud

152 x 83 x 21mm, 140g

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



309A

Commodore: SR-1800

1976, Japan

+ M -+ √ x² 1/n π ϴ log exp σ²

Power: 3 AA batteries or mains
Screen: fluorescent
Chip: GHU-03A 7610

Keys: concave, medium-travel, squashy, light, muffled click

160 x 86 x 39mm, 170g

About £18.45

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



310
Ibico: 0832

c. 1978, Japan

+ %

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: NEC D877G K71656

Keys: medium-travel, light and squashy, no click

143 x 79 x 30mm, 120g

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



311
Ibico: 065

Late 1970s-early 1980s, Japan

+ M −+ % √

Power: 3 button batteries
Screen: LCD

110 x 64 x 8mm, 40g

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



312A
Pye: P-640

c. 1974, Japan

+ M %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: LC1552B 7443

Keys: short-travel, springy, light, faint click

160 x 94 x 38mm, 190g

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



313A
Rockwell International: 44RD

1976, Japan

+ M −+ x^2 √ 1/n π ⊖ log exp xy

Power: 3 AA batteries or mains
Screen: fluorescent
Chip: A650DCB 7645

Keys: medium-travel, slightly wobbly, well weighted, soft and squash press, with springy release

154 x 76 x 24mm, 130g

£17

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



314A
Rockwell International: 64RD

1976, Japan

+ M −+ x^2 √ 1/n π ⊖ log exp

Power: 3 AA batteries or mains,
Screen: fluorescent
Chip: A4806CB 7615

Keys: short-travel, squashy, heavy

153 x 87 x 24mm, 150g

£23.50

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983

Battery compartment contains a dummy battery in a fourth slot (only three batteries are required)



315
Rockwell International: Advanced Slide Rule 61R

c. 1974, Mexico

+ M −+ √ 1/n π ⊖ log exp

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: A4002 15472PA 7441

Keys: concave and wedge-shaped, medium-travel, light and squashy, rock backwards, light click

156 x 84 x 24mm, 170g

$79.95 in March 1975

Donated by John Fleming (Sir M. MacDonald & Partners) in 1983



316
Plustronics Ltd: Plustron 808

c. 1975, UK

+ M %

Power: 9v battery or mains
Screen: LED
Chip: NS 433 MM 5738N

Keys: medium-travel, flimsy, light, springy, soft click

135 x 72 x 21mm, 90g

Donated in 1983

Plustronics Ltd was a company of Photopia International Ltd, a British photographic goods importer and distributor, who also distributed Kovac calculators



317
Rockwell International: Memory 21R

1975, UK

+ M %

Power: removable rechargeable battery pack
Screen: LED
Chip: A5300PC 7523

Keys: tall and dome shaped, medium-travel, heavy, deep click

154 x 76 x 22mm, 120g

$49.95 in March 1975

Donated by Julian Paren Bas in 1983

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



318
Sinclair: Executive

c. 1972, UK
+

Power: 4 button batteries
Screen: LED

140 x 56 x 9mm, 60g
£79.95
Donated by Robert Borrows in 1983 (he had been given it by Clive Sinclair)
This model was the first to win a Design Council Award



319B
Boots: Slimcard

Late 1970s–early 1980s, Japan
+ M % √

Power: 2 button batteries
Screen: LCD
Keys: short-travel, light, flimsy, muffled thud
83 x 54 x 5mm, 30g

Donated by Peter Dulley in 1986



320
Hanimex: BC 80

Early 1970s, Hong Kong
+

Power: 2 AA batteries or mains
Screen: LED
Chip: 7327 C2550
Keys: long-travel, well-weighted, squashy, soft click
151 x 76 x 21mm, 120g

Donated by Royal Stan in 1983



321
Casio: fx-2000

Late 1970s–early 1980s, Japan
+ M -+ √ 1/n π ⊖ log exp σ²

Power: 3 button batteries
Screen: LCD
Keys: medium-travel, quite wobbly, light, muffled click
120 x 66 x 11mm, 80g

Donated by Peter Uloth in 1983



322B
Sharp: Elsi Mate EL-8158

Late 1970s–early 1980s, Japan
+ M -+ % √

Power: 2 AA batteries
Screen: LCD
Chip: LI 3036 Sharp 9K2021

130 x 75 x 19mm, 110g

Donated by Mr Miller (Ridgeons, Cambridge) in 1984



323
Gestetner: Baltimore Calcul BC 80

Late 1970s–early 1980s, Singapore
+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, squashy, light, no click
56 x 92 x 7mm, 30g

Donated by Maryvonne Destardins in 1984



324
CBM Business Machines Ltd: Commodore SR-36

c. 1974, UK
+ M -+ √ x² 1/n π ⊖ log exp

Power: sealed rechargeable battery pack
Screen: LED
Chip: MO MSC2526 00102753
Keys: medium-travel, squishy, soft click
150 x 78 x 33mm, 140g
$149.95 in January 1975
Donated by Wallace Hawkins in 1984



325
Fi-Cord International Ltd: Anita 8051

Mid-late 1970s, Yugoslavia
+ M ⊙

Power: 3 AA batteries or mains
Screen: fluorescent

Keys: long-travel, well-weighted, no click
119 x 69 x 23mm, 120g

Donated in 1984



327

Casio: fx-29

c. 1977, Japan

+ M -+ √ 1/n π ⊖ log exp σ^2

Power: 2 AA batteries or mains
Screen: fluorescent
Chip: HD 36130 7J13

Keys: medium-travel, squashy, light, muffled click

152 x 80 x 22mm, 140g

£19.95

Donated by Mr Wormley (Forward Trust) in 1984



328B

Casio: HL-802

c. 1980, Japan

+ M % √

Power: 2 AA batteries
Screen: LCD

Keys: medium-travel, squashy, light, no click

136 x 74 x 20mm, 80g

£7.95

Donated by Peter Ulmer (Heidelburg Rotary Club) in 1985



329

Canon: Card LC-61T

c. 1979, Japan

+ M -+ % √

Power: button battery
Screen: LCD

Keys: medium-travel, light, muffled thud

104 x 68 x 7mm, 40g

Donated by John Morrison in 1984

The model has an alarm function and the case has ten holes in the front through which it can be heard



330

Texas Instruments: TI-15

Early 1980s, Taiwan

+ M -+ % √ x^2 1/n π

Power: 2 AA batteries
Screen: LCD

Keys: medium-travel, heavy, quite wobbly, muffled click

140 x 75 x 18mm, 80g

Donated by Texas Instruments in 1984



331

Texas Instruments: TI-54

Early 1980s, Italy

+ cm fdp -+ % √ x^2 1/n π ⊖

Power: 2 button batteries
Screen: LCD

Keys: short-travel, quite wobbly, heavy to the touch, hollow click

148 x 79 x 26mm, 100g

Donated by Texas Instruments in 1984



332

Texas Instruments: TI-55-II

c. 1981, USA

+ cm fdp -+ % √ x^2 1/n π ⊖

Power: 2 button batteries
Screen: LCD

Keys: short-travel, wobbly, heavy, bright click

149 x 79 x 25mm, 100g

$40 in 1981

Donated by Texas Instruments in 1984



333

Texas Instruments: TI-1032

1982, Italy

+ M % √

Power: 2 AA batteries
Screen: LCD

Keys: short-travel, heavy, loud click

147 x 80 x 32mm (in case), 130g

Donated by Texas Instruments in 1984



334

Texas Instruments: TI-1706

c. 1985, Taiwan

+ M % √

Power: solar
Screen: LCD

Keys: medium-travel, slightly loose, light, quiet thud then plastic click

120 x 64 x 10mm, 40g

Donated by Texas Instruments in 1984

GOLD PLATED LUXURY



Early calculators were expensive, and were promoted and sold as prestige objects. Profits could be considerable, and in early 1972, Electronics Journal reported that a typical calculator might cost $95 to produce, and retail for $395.

As more and more companies entered the market, however, competition increased and manufacturers were forced to find ways of lowering the production costs. Throughout 1973 and 1974, calculator prices dropped. In June 1974, New Scientist reported on the plummeting prices, and the new models being introduced by companies anxious to protect their profit margins.



087A1 and 087A2

Sinclair Sovereign and advert (opposite)

1977

Once the market had settled down in 1975-6, calculator manufacturers introduced new 'prestige' models to appeal to the upper end of the market – particularly businessmen. One of these, the Sinclair Sovereign, launched in 1977 with an advertising campaign that Sinclair described as “as stylish and memorable as the products they're selling”.

Selling for five to ten times the price of a standard calculator, with a gold-plated option the most expensive, there was even a special silver jubilee calculator featuring a crown and wreath design engraved on the front. However, despite these high prices Sinclair could not make a profit, and the Sovereign was among the last calculators they made.





290

Casio CQ-2 and advert

1977

As calculators dropped in price, and profit margins were squeezed, some manufacturers introduced multifunctional calculators – this one was also a clock, alarm, and stop watch, with the advert pointing out all its versatility.









361

Randix MCT-550

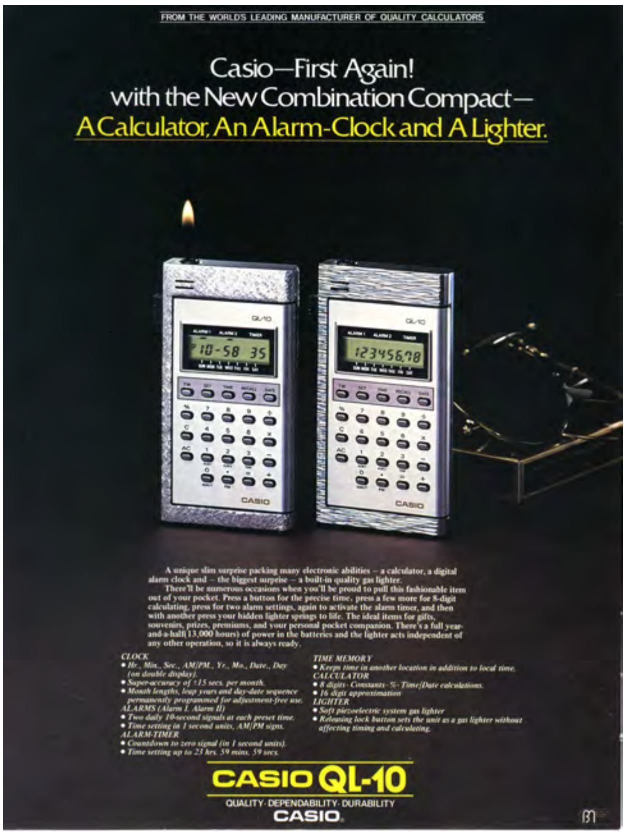
Late 1970s/early 1980s.

For the early 1980s business person on the go, the Randix calculator combined all the usual calculator functions with a dictaphone for recording messages.

Advertisment for Casio QL-10

1978

Francis Hookham did not have this model of calculator in his collection, but cut out and kept this advert for a combination calculator, alarm clock and lighter in July 1978. It reassures potential users that the lighter function was independent of the calculator functions, so "it is always ready".





335

Texas Instruments: TI LCD Programmer

c. 1982, Italy

+ cm -+ pg bc

Power: 2 button batteries
Screen: LCD

148 x 79 x 26mm, 100g

Donated by Texas Instruments in 1984

This model operates not only on base-10, but also on base-8 and base-16



336

Panasonic: National JE-335

Late 1970s-early 1980s, Japan

+ M -+ % √

Power: button battery
Screen: LCD

Keys: touch sensitive keys

74 x 103 x 8mm, 40g

Donated by Miwako Hatanaka in 1984



337

Texas Instruments : TI-5020

c. 1983, Japan

+ M -+ % √ fdp

Power: solar
Screen: LCD

192 x 128 x 44mm



338

Protronic: 808

c. 1976

+ M %

Power: 9v battery or mains
Screen: LED
Chip: TI ZA0571 KFS D 7611

Keys: concave, long-travel, squashy, light, no click

138 x 76 x 20mm, 80g

Donated by Mr R. Stader in 1984



339

Canon: LS-704

1984, Japan

+ M -+ % √

Power: solar
Screen: LCD

Keys: touch sensitive keys

54 x 86 x 2mm, 20g

Donated by Tony Cooke (Catling, Brady and Bliss) in 1984



340

Hewlett Packard: HP-12C

1981-4, USA

+ cm fdp -+ % √ 1/n exp

Power: 3 button batteries
Screen: LCD

80 x 129 x 15mm, 90g

$80 in 1981

Donated by Hewlett Packard in 1984



341

Hewlett Packard: HP-15C

1984, USA

+ cm fdp -+ % √ x² 1/n π ⊖

Power: 3 button batteries
Screen: LCD

Keys: short-travel, well weighted, rock backwards, muted click

80 x 128 x 15mm, 100g

$135 in 1982

Donated by Hewlett Packard in 1984



342

Hewlett Packard: HP-22

c. 1975, Singapore

+ M fdp -+ % √ log exp £ ab+

Power: removable rechargeable battery pack
Screen: LED

Keys: short-travel, light, deep click

129 x 67 x 29mm, 100g

$165 in 1975

Donated by Ian Spencer (Heffers, Cambridge) in 1984



343

Radio Shack: EC-351

Late 1970s-early 1980s

+

Power: 2 AA batteries
Screen: LCD
Chip: Toshiba T 3870 2-A

Keys: medium-travel, heavy, no click

165 x 98 x 18mm, 100g



344

Concept 2000: Sesame Street Electronic Blackboard

Late 1970s-early 1980s, Hong Kong

+

Power: 6 UM-2 batteries
Screen: LCD
Chip: 723 MM57102N

155 x 189 x 141mm, 420g

Donated by Charles Armstrong in 1983



345

Sperry Rand Corporation: Remington 663

1973, Japan

+

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: NEC MPD177C K3Y456, NEC MPD129C X3Y226

Keys: long-travel, no click

154 x 84 x 41mm, 240g

Donated by John Critchell in 1985



346

Olympia Werke AG: PD610

c. 1979, Japan

+ M fdp %

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: M58871P 9Z97

Keys: short-travel, squishy and light

170 x 85 x 36mm, 400g

Purchased for £3.25 in 1981

Donated by Martin Kemp (Wellequip) in 1985

Calculator also has a print-out facility, with the printer above the screen



347

Sharp: Elsi Mate EL-1134

Late 1970s-early 1980s, Japan

+ cm fdp -+ % √

Power: 2 AA batteries
Screen: LCD

Keys: concave, long-travel, heavy, then lightly weighted after faint click

175 x 128 x 20mm, 200g



348

Decimo: Vatman Mini Video LCD

Late 1970s-early 1980s, Japan

+ M fdp % √

Power: 4 AA batteries or mains
Screen: LCD
Chip: Toshiba T3781 OC, Sharp 1R2423 900-910 (x2)

Keys: long-travel, heavy, then lightly weighted after faint click

218 x 117 x 50mm, 500g

Decimo marketed at least 32 calculators named 'VATman' after the tax inspectors who enforced the new 'Value Added Tax' from April 1973



349

Olympia Werke AG: CD80

1972-3, Japan

+

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: TI TMS 0122NCD 7249

Keys: raised dot on numeral 5 key, long-travel, very light, bright click

162 x 100 x 46mm, 390g

Donated by Nick Barrington in 1982

This was an early clock-style model, with the low power consumption of the display allowing the time to be continuously displayed whilst in the watch mode



350

Memory Master

c. 1975, Hong Kong

+ M %

Power: 3 AA batteries or mains
Screen: LED
Chip: 7503 0-595-1

Keys: concave, short-travel, well weighted, bright click

152 x 75 x 20mm, 110g

Donated by Mr F. L. Eden (Redland Tiles) in 1984



351
Detson: E406

c. 1976, Japan

+ -+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A 5811PA 7536

Keys: medium-travel, slightly wobbly, well weighted, no click

141 x 88 x 28mm, 140g

Donated by Alan Starte in 1986



352
Unitrex

1978, Hong Kong

+ M -+ %

Power: 9v battery or mains
Screen: LED

Keys: dip in centre for grip, short-travel, wobbly, positive click

131 x 67 x 22mm, 70g

Donated by Richard Connelly in 1984



353
MBO: Traveller Card

Late 1970s-early 1980s

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, heavy, no click

52 x 84 x 4mm, 20g

Donated by someone from the Heidelberg Rotary Club in 1985

Rear of calculator has a conversion table



354
Underwood: 503

1970s, Japan

+ M % √

Power: AA battery or mains
Screen: fluorescent

Keys: medium-travel, light, springy but prone to sticking

125 x 75 x 22mm, 80g

Donated by Pedol Lino in 1985



355
Sharp: Elsi Mate EL-8005S

c. 1975, Japan

+ %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: HD36290 5G21

Keys: slightly concave, short-travel, quite wobbly, squashy and light, muffled sound

136 x 84 x 26mm, 130g

Donated by Michael Horler in 1986



356
Qualitron: 5222

c. 1981, Taiwan

+ M % √

Power: solar
Screen: LCD

Keys: short-travel, heavy, prominent click

103 x 58 x 8mm, 50g

Donated by Martin Lumby in 1987



357
Litronix, Inc: 2260R Exponential

1974, Malaysia

+ -+ √ x^2 π

Power: sealed rechargeable battery pack
Screen: LED

Keys: medium-travel, fairly light, soft click

165 x 80 x 20mm, 150g

Donated by Mr Whitaker (Water Co.) in 1985

Rear panel of calculator gives examples of how to operate this model



358
Panasonic: JE8004 (National Panac 8004)

1977, Japan

+ M % √

Power: AA battery or mains
Screen: fluorescent
Chip: TMS 1042NL KDSND 7723

Keys: medium-travel, wobbly, initially light and squashy, then heavier, no click

118 x 70 x 23mm, 90g

Donated by Captain Kisray in 1986



359
Sanyo: CX 2570

Late 1970s-early 1980s, Japan

+ M -+ % √

Power: solar
Screen: LCD

Keys: short-travel, wobbly, slightly squashy and heavy, muffled

104 x 64 x 9mm, 50g

Donated by Robin Barratt in 1985



360
Logitech: LC-60U

Late 1970s-early 1980s, Taiwan

+ M -+ % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light, squashy, no click

91 x 59 x 5mm, 30g

Donated by Pedol Lino in 1985



361
Randix: MCT-550

Late 1970s-early 1980s, Taiwan

+ M % √

Power: 3 AA batteries or mains
Screen: LCD

Keys: medium-travel, well weighted, squashy, quiet thud

147 x 67 x 36mm, 300g

Donated by Andrew Firebrace in 1985

This calculator comes combined with a dictaphone on the reverse side, with a sliding brushed aluminium cover to the cassette recorder



362
Colex: 811A

1976, Hong Kong

+ M %

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: A4130PA 7550

Keys: medium-travel, initially light and squashy, then more springy, no click

152 x 96 x 30mm, 180g

Donated by B. H. Robinson (Sibley Robinson) in 1985



363
Dixons: Prinztronic MC85

c. 1972, Japan

+ M -+

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: 105735A Sharp (x2)

Keys: long-travel, well weighted, springy thud

174 x 112 x 45mm, 410g

Donated by Robin Barratt in 1985

Prinz and Prinztronic brand names were used in the 1970s by Dixons electronics stores, for calculators all made by other companies



364
Dixons: Prinztronic MC99

1973, Japan

+ M -+

Power: sealed rechargeable battery pack
Screen: fluorescent
Chip: I5340 PA 7319

Keys: long-travel, light and springy, high pitched thud

175 x 117 x 48mm, 420g

Donated by Chris Taylor (Corpus Christi College, Cambridge) in 1985



365
Sharp: Elsi Mate EL-207

Late 1970s-early 1980s, Japan

+ M % √

Power: 9v battery
Screen: LCD
Chip: SC 37003S 8J33

Keys: medium-travel, light, quite squishy

116 x 75 x 22mm, 110g

Donated by Chris Taylor (Corpus Christi College, Cambridge) in 1985



366
Hewlett Packard: HP-37E

1979, USA

+ M fdp -+ % √ % 1/n log exp

Power: removable rechargeable battery pack
Screen: LED

Keys: medium-travel, heavy, rock backwards, bright click

142 x 72 x 31mm, 160g

$75 in 1978

Donated by Ian Spencer (Heffers, Cambridge) in 1987

Like most business calculators, the HP-37E was not programmable but instead contained a wealth of pre-programmed functions



Advertisement for 'electronic learning aids' from Texas Instruments
1981

As calculators became more and more popular, the same technology was used to produce toys and learning aids. Some of these functioned as calculators, and although many did not, Francis Hookham included a number of the Texas Instruments learning aids in his collection, which were given to him by the company in 1981.

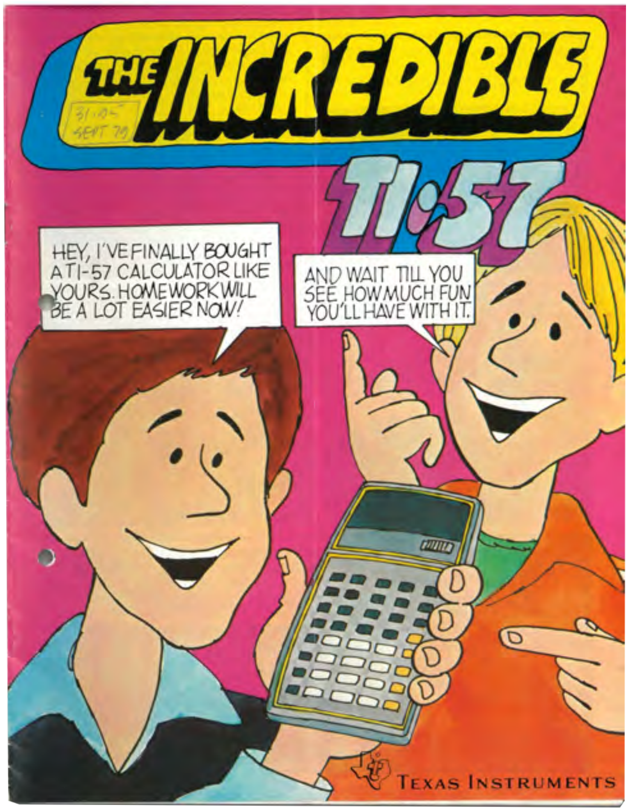


207

Texas Instruments Little Professor

c. 1978

Little Professor has a special place in many people's hearts, and millions have been sold since this mathematical toy was first introduced in 1976. He asks one of his 16,000 pre-programmed questions, and checks if you enter the right answer.



045A1

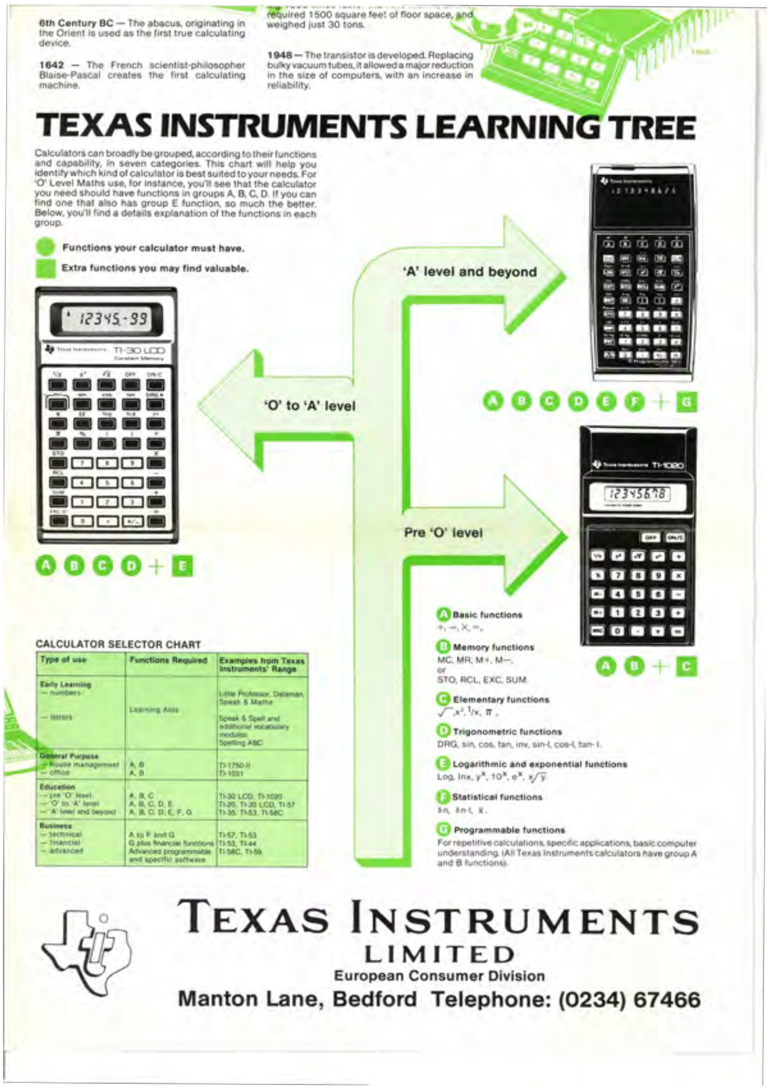
Comic booklet advertising Texas Instruments TI-57

1978

Texas Instruments promoted the TI-57 as the ideal calculator for students. In one advertisement it was claimed to be "even better than having two heads".

In this booklet, the company appealed to A-level and university students in a comic featuring two students showing each other tips and tricks with their calculator, before using it to win a shopping spree at a record shop.





Type of use	Functions Required	Examples from Texas Instruments' Range
Early Learning — numbers — letters	Learning Aids	Little Professor, Dataman, Speak & Maths Speak & Spell and additional vocabulary modules Spelling ABC
General Purpose — house management — office	A, B A, B	TI-1750-II TI-1031
Education — pre 'O' level — 'O' to 'A' level — 'A' level and beyond	A, B, C A, B, C, D, E A, B, C, D, E, F, G	TI-30 LCD, TI-1020 TI-20, TI-30 LCD, TI-57 TI-35, TI-53, TI-58C
Business — technical — financial — advanced	A to F and G G plus financial functions Advanced programmable and specific software	TI-57, TI-53 TI-53, TI-44 TI-58C, TI-59

Advertisement for Texas Instruments calculators for school

Late 1970s

This advert sets out which of the range of calculators from Texas Instruments were most appropriate for different school levels. It identifies the TI-57 as most suitable for A-levels and University students, and the TI-30 as appropriate for students doing O-levels.

045A

Texas Instruments TI-30

1977

This model of calculator was one of the first to be marketed for education, and to be used in schools. Millions were sold, and it was so popular that the name continued to be used for a number of years.





367

Samsung: Secal 808F

1979, Korea

+ fdp -+ % √ £

Power: 4 AA batteries or mains
Screen: fluorescent
Chip: 7909 A456IC8

Keys: medium-travel, concave, well weighted, squashy, muffled thud

140 x 80 x 37mm, 150g

Donated by Captain Kisray in 1986



368

Rockwell International: 10R

c. 1975, Mexico

+

Power: 9v battery or mains
Screen: LED
Chip: A5000 PA 7444

138 x 76 x 23mm, 100g

$24.88 in March 1975

Donated by Nicholas Heffer in 1986

Rockwell were an early single-chip manufacturer, whose chips were used by many others, but they left the calculator business in the late 1970s



369

Rockwell International: Silde Rule Memory 31R

1975, UK

+ M -+ % √ x² 1/n

Power: 9v battery or mains
Screen: LED
Chip: A5502CB 7539

Keys: tall and dome-shaped, short-travel, well weighted, bright click

155 x 76 x 22mm, 120g

$59.95 in March 1975

Donated by Martin Kemp (Wellequip) in 1985



370

National Semiconductor Corporation: Mathematician 4510

c. 1975, Malaysia

+ M -+ x² √ 1/n π ⊖ log exp ab+

Power: 9v battery or mains
Screen: LED
Chip: M760AX636EM

Keys: concave, well weighted, bright loud click

149 x 75 x 31mm, 90g

$60 in 1975

Donated by Margaret Pleasance in 1984

This calculator exists under both the names Novus and National Semiconductor and comes in at least three different case styles



371

National Semiconductor Corporation: Novus 4520 Scientist

1976, Malaysia

+ M -+ √ 1/n π ⊖ log exp ab+

Power: sealed rechargeable battery pack
Screen: LED
Chip: NS 543 MM 5758N

Keys: short-travel, squishy and soft, rock forwards, no click

157 x 74 x 25mm, 130g

£30.80 to £23.50

Donated by Peter Hookham

Novus was a brand name used by National Semiconductor to help promote their products



372

National Semiconductor Corporation: Novus 4515 Mathematician PR

c. 1976, Malaysia

+ M -+ √ x² 1/n π ⊖ log exp pg ab+

Power: sealed rechargeable battery pack
Screen: LED
Chip: NS 514 MM5760N

Keys: medium-travel, heavy and squashy

156 x 73 x 27mm, 130g

£32.45



373

National Semiconductor Corporation: 108

c. 1983, Taiwan

+ M -+ x² √ 1/n π ⊖ log exp σ²

Power: 2 button batteries
Screen: LCD

130 x 70 x 8mm, 80g

Donated by Christopher Leach in 1986



374

Casio: fx-3600P

c. 1981, Japan

+ M fdp -+ % x² √ 1/n π ⊖ log exp pg σ² xy

Power: button battery
Screen: LCD

Keys: medium-travel, well weighted, muffled thud

133 x 70 x 10mm, 60g

£22.95

Donated by Oliver Watson in 1987



375

Lloyd's Electronics International: Accumatic E603

c. 1977, Taiwan

+ M -+ % √

Power: 3 AAA batteries or mains
Screen: fluorescent
Chip: TMS 1044NL KSD 7632

Keys: medium-travel, wobbly, heavy, loud click

138 x 73 x 13mm, 90g

Donated by John Riley (Sun Alliance) in 1985

Rear panel of calculator gives examples of how to operate this model



376

Casio: fx-201P

c. 1976, Japan

+ M -+ √ 1/n π ⊖ log exp pg σ²

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: medium-travel, squashy, light click

173 x 104 x 31mm, 240g

Donated by Duncan Mackay in 1985

The programming model is unusual – it uses simple statements involving the ten data registers



377

Samsung: Secal 801M

1974, Korea

+ M fdp -+ %

Power: sealed rechargeable battery pack
Screen: LED
Chip: 15330 A1030PE 7426

Keys: short-travel, light, no click

132 x 80 x 27mm, 120g

Donated by Captain Kisray in 1986



378

Casio: LC-841

c. 1976, Japan

+ M % √

Power: button battery
Screen: LCD

Keys: short-travel, light, no click

110 x 61 x 5mm, 60g

£9.95

Donated by Stanley Read in 1987



379

Casio: Film Card SL-800

Early 1980s, Japan

+ M % √

Power: solar
Screen: LCD

Keys: touch sensitive keys

54 x 86 x 1mm, 10g

Donated by David Warren in 1986



380

Casio: fx-7100B

c. 1980, Japan

+ M -+ % x² √ 1/n π ⊖ log exp σ²

Power: 2 button batteries
Screen: LCD

Keys: short-travel, squashy, light, muffled click

91 x 55 x 5mm, 40g

£24.95

Donated by Ian Spencer (Heffers, Cambridge) in 1987



381

Canon: EX-1QT

c. 1977, Japan

+ M -+ %

Power: button battery
Screen: LCD

Keys: medium-travel, light, muffled thud

96 x 56 x 5mm, 30g

This model was one of the first calculators performing money conversions



382

Pfizer (Roerig Division)

Late 1970s-early 1980s, Hong Kong

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, squashy, heavy, no click

58 x 90 x 9mm, 30g

Rear of calculator has a table of conversion factors, and was used to promote a drug produced by the Roerig division of Pfizer



383
FHD: FHD Top-Solarzellen-Rechner

Early 1980s

+ M -+ % √

Power: solar
Screen: LCD

Keys: short-travel, well-weighted, dull click

61 x 92 x 9mm, 30g

Donated by Diedrichs Ingo in 1985



384
Digitron

Early 1980s

+ M -+ % √

Power: solar
Screen: LCD

Keys: touch sensitive keys

54 x 80 x 7mm, 20g

Donated by Hotel Europa (Heidelberg) in 1985



385
APF Electronics Inc: Mini-Calc M3550

Late 1970s-early 1980s, Hong Kong

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, light, no click

55 x 95 x 6mm, 30g

Donated by Chris Taylor (Corpus Christi College, Cambridge) in 1985



386
Texas Instruments: TI-40

1982, Italy

+ cm -+ % x² √ 1/n π ϴ log exp σ²

Power: 2 button batteries
Screen: LCD

Keys: short-travel, wobbly, heavy, muted click

146 x 78 x 25mm, 90g

Donated by Ian Spencer (Heffers, Cambridge) in 1987

387
Radio Shack/Tandy Corporation: EC-266 (Mity

Late 1970s-early 1980s, Hong Kong

+ M % √

Power: 2 button batteries
Screen: LCD

50 x 88 x 4mm, 20g

Donated by Jenny Fisher in 1985



388
Silver-Reed (or Silver Seiko): LCD-24

Late 1970s-early 1980s, Germany

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light, muffled click

51 x 88 x 4mm, 20g

Donated by Nigel Neville in 1985



389
Universal: Executive (931)

1976, Malaysia

+ M -+ %

Power: 9v battery or mains
Screen: LED
Chip: TI ZA0571 KFS D 7620

Keys: medium-travel, well weighted, muffled thud

114 x 65 x 22mm, 70g

Donated by Graham Solway in 1987



390
Lloyd's Electronics International: Accumatic 680 (E680-2)

1978, Taiwan

+ M fdp % ab+

Power: 2 UM-1 batteries or mains
Screen: fluorescent
Chip: TI TMC1073NL KMSL 7827

Keys: medium-travel, well-weighted, bouncy, springy click

164 x 160 x 40mm, 280g



391
Computer Design Corporation: Sumlock Compucorp 342 Statistician

1972–5, USA

+ M -+ √ 1/n log exp pg σ^2

Power: sealed rechargeable battery pack
Screen: fluorescent

Keys: short-travel, heavy, bright click

229 x 138 x 73mm, 1160g

Donated by V. F. Mathews in 1987

Orange display with a green filter as a flip-up screen, and a fold-out stand on the rear



392
APF Electronics Inc: M 103PD

Early-mid 1970s, Japan

+ M fdp %

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: slightly convex, medium-travel, soft thud and bright click

225 x 135 x 48mm, 580g

Donated by Martin Kemp (Wellequip) in 1985

Calculator has printer above screen, with a fold-up metal arm for holding a print roll



393
Texas Instruments: TI-30-II

c. 1983, USA

+ cm -+ % √ x^2 1/n π ⊖ log exp

Power: 2 button batteries
Screen: LCD

134 x 74 x 10mm, 70g

£9.95

Donated by Ian Spencer (Heffers, Cambridge) in 1986



394
Casio: ML-75

c. 1982, Japan

+ M % √

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light, no click

59 x 90 x 5mm, 40g

£14.95

A grey switch at front bottom left changes mode between time, set, melody and calculator



395
Casio: S-2

Early-mid 1970s, Japan

+ M fdp -+ % √

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: long-travel, light and squashy, no click

171 x 132 x 43mm, 280g

£22.95 in 1981



396
Texas Instruments: TI-30

c. 1980, Italy

+ M -+ % x^2 √ 1/n π ⊖ log exp

Power: 2 button batteries
Screen: LCD

Keys: short-travel, wobbly, light, dull click

148 x 80 x 15mm, 80g

£9.95

Donated by Texas Instruments in 1987



397
Texas Instruments: TI-30 Galaxy

c. 1984, Japan

+ cm fdp -+ % √ x^2 1/n π ⊖ log

Power: button battery
Screen: LCD

Keys: raised dots for grip, short-travel, wobbly, well weighted, soft thud

100 x 156 x 25mm, 150g

Donated by Texas Instruments in 1987



398
Texas Instruments: BA-Solar

c. 1986, China

+ M % fdp -+ % √ 1/n log exp σ^2 £

Power: solar
Screen: LCD

Keys: medium-travel, springy, light, soft click

142 x 77 x 12mm, 100g

£5.95

Donated by Texas Instruments in 1987

This model was the first solar-powered financial calculator



399
Texas Instruments: TI-1103

1986, Taiwan

+ M % √

Power: button batteries
Screen: LCD

Keys: medium-travel, squishy, wobbly

114 x 69 x 12mm, 50g

Donated by Texas Instruments in 1987



400
Texas Instruments: TI-62 Galaxy

1986, Italy

+ cm fdp -+ √ x² 1/n π ϴ

Power: 2 button batteries
Screen: LCD

Keys: medium-travel, light, springy, bright click

98 x 149 x 26mm, 170g

Donated by Texas Instruments in 1987



401
Texas Instruments: TI-808

c. 1986, Taiwan

+ M -+ %

Power: solar
Screen: LCD

121 x 106 x 24mm, 70g

Donated by Texas Instruments in 1987



402
Texas Instruments: TI-606

1986, Taiwan

+ M % √

Power: solar, Screen: LCD

Keys: short-travel, light, squishy, muffled click

121 x 75 x 13mm, 100g

Donated by Texas Instruments in 1987



403
Texas Instruments: Compact Computer (CC) 40

c. 1975

+ cm fdp -+ % √ x² 1/n π ϴ

Power: 4 AA batteries or mains
Screen: LCD

Keys: short-travel, light, muffled click

147 x 237 x 25mm, 570g

$249 in 1983

Donated by Texas Instruments in 1987

As the name suggests, this is a computer rather than a calculator, although still capable of the full range of calculator functions



404
Texas Instruments: TI-74 Basicalc

1986, Taiwan

+ cm fdp -+ % √ x² 1/n π ϴ log exp pg σ² qw

Power: 4 AAA batteries or mains
Screen: LCD

Keys: slightly concave, medium-travel, well weighted, somewhat squashy, soft thud

107 x 212 x 31mm, 410g

Donated by Texas Instruments in 1987

Designed to connect with accessories, including a cassette adapter and printer



405

Texas Instruments: TI-95 Procalc

1986, Taiwan

+ cm fdp -+ % x² √ 1/n π ⊖ log exp pg σ² qw

Power: 4 AAA batteries or mains
Screen: LCD

Keys: medium-travel, light, no click

108 x 212 x 31mm, 400g

Donated by Texas Instruments in 1987

Designed to connect with accessories, including a cassette adapter and printer



406

Casio: fx-995

Early 1980s, Japan

+ M cm -+ x² √ 1/n ⊖ log exp

Power: solar
Screen: LCD

124 x 70 x 3mm, 50g

This calculator could supposedly run on just the light of a candle flame



407

Hewlett Packard: 18-C Business Consultant

1980s, USA

+ cm fdp -+ % √ x² 1/n ⊖

Power: 3 batteries
Screen: LCD

158 x 93 x 18mm, 180g

Donated by Hewlett Packard in 1987



409

Texas Instruments: TI-41

1977, Italy

+ M -+ % √ x² 1/n log exp £

Power: 9v battery
Screen: LED

Keys: short-travel, heavy, clear click

147 x 80 x 35mm, 90g

Donated by Texas Instruments in 1987



410

Casio: fx-570

1980s, Japan

+ cm fdp -+ % x² √ 1/n π ⊖ log exp σ² bc h

Power: button battery
Screen: LCD



411

Casio: Databank PF-8000

c. 1985, Japan

+ M % √ 🗓

Power: 2 button batteries
Screen: LCD

Keys: touch sensitive, with finger input by tracing character shapes

81 x 143 x 14mm, 120g

Keys are touch sensitive and also allow 'finger input' of letters – on the inside cover are the finger motions necessary to input 48 different characters



412

Casio: Business Calculator BC-300

c. 1985, Japan

+ cm % 🗓 ⏰ qw

Power: 2 button batteries
Screen: LCD

Keys: short-travel, light and squashy, no click (calculator), touch sensitive (QWERTY)

79 x 130 x 18mm, 140g

The top half contains the screen and a 'QWERTY' keyboard, while the bottom half contains conventional calculator keys and an alarm with speaker



421E

Pye: P-640

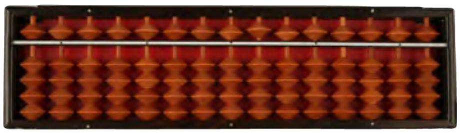
1974, Japan

+ M %

Power: 4 AA batteries or mains
Screen: fluorescent

Keys: short-travel, light, faint click

159 x 93 x 38mm, 190g



Soroban

1950s or 1960s, Japan

+

239 x 65 x 34mm

Before Hookham's collection was devoted exclusively to electronic calculators, this was object number 1



Bulmer's Calculators Ltd: Addo model 8

c. 1926, Sweden

+

350 x 210 x 230mm

Bulmer's were the British agent for the Swedish company Addo, founded in 1917, who manufactured typewriters as well as calculators



Hamann Manus and Deutsches Telephon Werke: Hamann Manus R

c. 1953, Germany

+

305 x 230 x 167mm

The 'ratchet-drive machine' is of similar outward appearance to an ordinary Odhner-type machine, but the settings levers remain fixed during operation



London Computator Corporation Ltd

c. 1940, England

+

227 x 185 x 130mm

The London Computator Corporation, Ltd, was formed by Bell Punch to deal with the sales side of the Plus and Sumlock machines, and renamed Sumlock Ltd in 1950



Guy's Calculating Machines: Muldivo mechanical calculator

c. 1950, UK

\+

310 x 160 x 130mm

The Muldivo Calculating Machine Co Ltd, founded in 1912, distributed calculators from many companies, and also manufactured some models themselves



Facit: Facit CA1-13

c. 1957, Sweden

\+

270 x 260 x 210mm

$525 in 1964, to $445 in 1969

This is a rotary calculator, using a pinwheel machanism



Industria Macchine Elettroniche: IME digicorder

c. 1969, Italy

pg

380 x 230 x 203mm

This is an accessory for the IME 86-S calculator which connects via a 50-way cable and allows programmes to be created and executed



Industria Macchine Elettroniche: IME 86-S

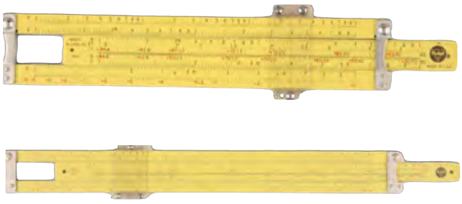
c. 1969, Italy

\+ M fdp

Power: mains
Screen: LED

470 x 405 x 200mm

This was designed to be part of a multi-component system, and many options were available, including keyboard and display units, memory, and programmer units



Pickett & Eckel: two slide rules

c. 1959

+ log ⊖

228 x 74 x 33mm



Contina A G Mauren: Curta Type 1

c. 1969, Liechtenstein

+

68 x 123mm (case), 53 x 107mm (calculator)



Exactus Business Machines: Stylus

1950s or 1960s, UK

+







Hewlett Packard: security cradles and cases

Early-mid 1970s

320 x 230 x 105mm

Security cradles cost £20.77 in March 1980



A WORLD OF CALCULATORS AT BOOTS

INDEX BY MANUFACTURER

'A World of Caculators at Boots' (previous page)

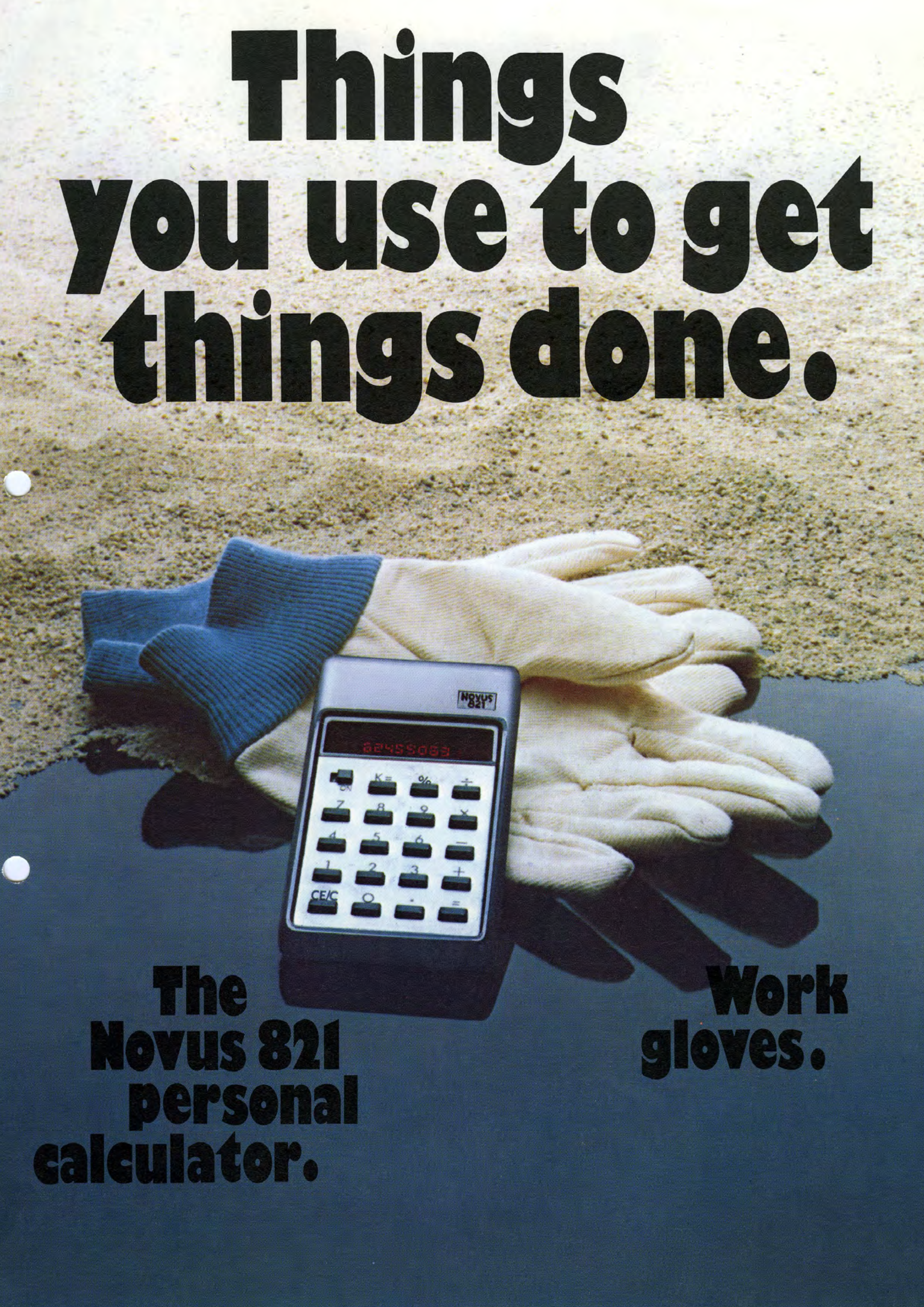
1981

The first reuseable spacecraft was launched in 1981 – NASA's Space Shuttle Columbia had its maiden flight in April that year. This space-themed advertisement for Boots-branded calculators was cut out by Francis Hookham to keep with his archive.

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ELECTRONIC CALCULATOR
SHARP


Things you use to get things done.
The Novus 821 personal calculator.
Work gloves.

ACKNOWLEDGEMENTS

The Francis Hookham Collection of Hand Held Electronic Calculators was put together over a number of years by Hookham, and given to the Whipple Museum of the History of Science in 1988.

Since then, a number of staff and students have worked over several years to make the collection accessible by cataloguing each item, by photographing and scanning objects for the Whipple Museum's online database and by researching the collection. Their work made this catalogue possible. Thank you in particular to:

Morgan Bell
Sophia Davis
Hester Higton
Steve Kruse
Michael F. McGovern
Josh Nall
Michael Rich
Kemal de Soysa

Thankyou also to Nick Eagleton for his enthusiasm and ideas for this catalogue.

Cases for calculators (previous page)

1970s

In faux-leather, and designed to look luxurious, cases like these were provided with some models to protect calculators from scratches or damage while being carried around.

Advertisement for Novus 821 (opposite)

1970s

Comparing a calculator to a pair of work gloves, this advertisement presents both as things essential for getting work done. Francis Hookham cut this advert out and added it to a ring-binder of printed material relating to calculators, kept with his collection.

Advertisement for Canon Palmtronic LC (next page)

1970s

As competition increased in the calculator market, companies invested in advertising to present their models as more desirable than others'. This advert points to both the liquid crystal display and metallic case as ensuring that this particular model is not dull.

Who says calculators have to be dull ?

Liquid crystal calculation encased in pure luxury.

Canon
Palmtronic LC



English Edition

IMAGE CREDITS

Francis Hookham collected newspaper clippings and advertisements and other material relating to calculators, which he kept with his collection – he aimed to collect this material before it was lost. In this catalogue, advertisements, news clippings, and other items are included where they are important to understanding the context for a particular calculator or for the collection.

All images in this book are of objects, news clippings, advertisements or other items in the Francis Hookham Collection. All photographs of calculators are © Whipple Museum of the History of Science. Only objects and items other than calculators are listed and credited below.

Every effort has been made to secure permission to reproduce in this book advertisments and other print materials published by or for calculator manufacturers. However, this has not been possible in all cases, including where the company is no longer in business. If any credit errors or omissions are brought to our notice, we will be happy to include appropriate acknowledgements in any reissue of the catalogue.

Cover: drawings © Francis Hookham

Frontmatter:
- Cases for calculators, various companies
- Original boxes for calculators, various companies
- Cover of instruction booklet for Texas Instruments SR-50, given to Hookham in 1980 along with calculator 047A © Texas Instruments
- Advertisement for Sharp pocket calculators, 1981 © Sharp Corporation

Catalogue:
- 3: Owner's handbook for Hewlett-Packard HP25, probably bought in 1977 by Hookham along with an HP-25C calculator © HP Inc
- 4: Hand-drawn flyers created by Francis Hookham, reminding people about his collection of calculators, or thanking them for giving a calculator for the collection © Francis Hookham
- 6: Sam Kiley, "Yesterday's high-tech is today's museum piece", cutting from The Times 1988 © The Times
- 7: Captioned image of Francis Hookham, published in Times Educational Supplement 1988 © Times Educational Supplement
- 8-9: Original boxes for calculators, various companies
- 10: Hewlett-Packard, Getting the most from continuous memory booklet, 1977 © HP Inc
- 17: Advertisement for Sharp Elsi Mate EL-8152 © Sharp Corporation
- 28: Operating instructions for Bowmar 901C © Bowmar LLC
- 37: Advertisement for Sinclair Executive, clipped from Telegraph Magazine in February 1973 © Sinclair / Telegraph Magazine
- 46: Sharp advertisement, clipped from Sunday Times, 11 December 1977 © Sharp / Sunday Times
- 54: Cases for calculators, various companies
- 68: Advertisement for Sinclair Oxford © Sinclair Radionics
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- 84: Advertisement for Texas Instruments learning aids © Texas Instruments
- 86: Cartoon from booklet advertising Texas Instruments TI-57 © Texas Instruments
- 87: Advertisement for Texas Instruments calculators at school © Texas Instruments
- 97: Advertisement for calculators at Boots, December 1981 © Boots UK Limited
- 101: Cases for calculators, various companies
- 102: Advertisement for Novus 821 © National Semiconductor
- 104: Advertisement for Canon Palmtronic LC © Canon Inc.

Endmatter:
- Boxes for calculators, various companies
- Cover of National Semiconductor 4510 Operations Guide booklet © National Semiconductor



TEXET
Electronic Calculator
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1
7
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CASIO
SCIENTIFIC CALCULATOR
fx-570
10
SHARP


FACIT
FACIT
2003
ELECTRONIC CALCULATOR
MADE IN TAIWAN
3110
エルシーメイト
Made in Hong Kong

National Semiconductor Operations Guide

4510
4510
4510

"It is a period of history which it seemed within my power to freeze. I hope in a couple of hundred years, someone will be glad I did so."

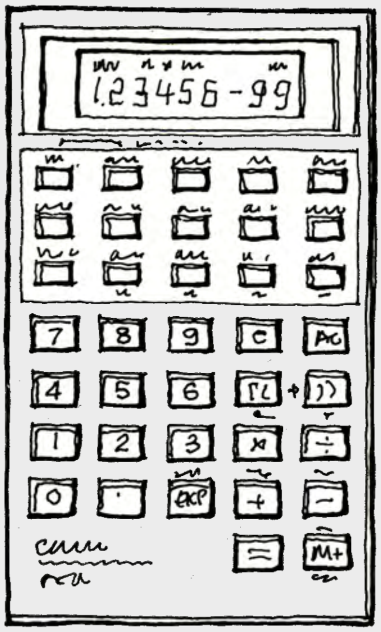
Francis Hookham, 1988

"The kids are not really turned on by the medieval instruments, but they are fascinated by the calculators."

Dr Jim Bennett, Curator of the Whipple Museum of the History of Science, 1988

MEMORY / RECALL

The Francis Hookham Collection of Hand Held Electronic Calculators was begun in the 1970s, when pocket calculators were changing from expensive high-end scientific tools into everyday technology. When donated to the Whipple Museum of the History of Science in 1988, the collection included more than 400 different types of calculator. It is only ever possible to display a small number of the calculators in the Whipple Museum, but this catalogue includes the whole collection, along with a selection from the advertisements and other archival materials collected by Hookham to preserve and document a new technology that was for a time ubiquitous, but has now already been eclipsed.



Whipple Museum
of the History of Science